The Iron Age

A Review of the Hardware, Iron and Metal Trades.

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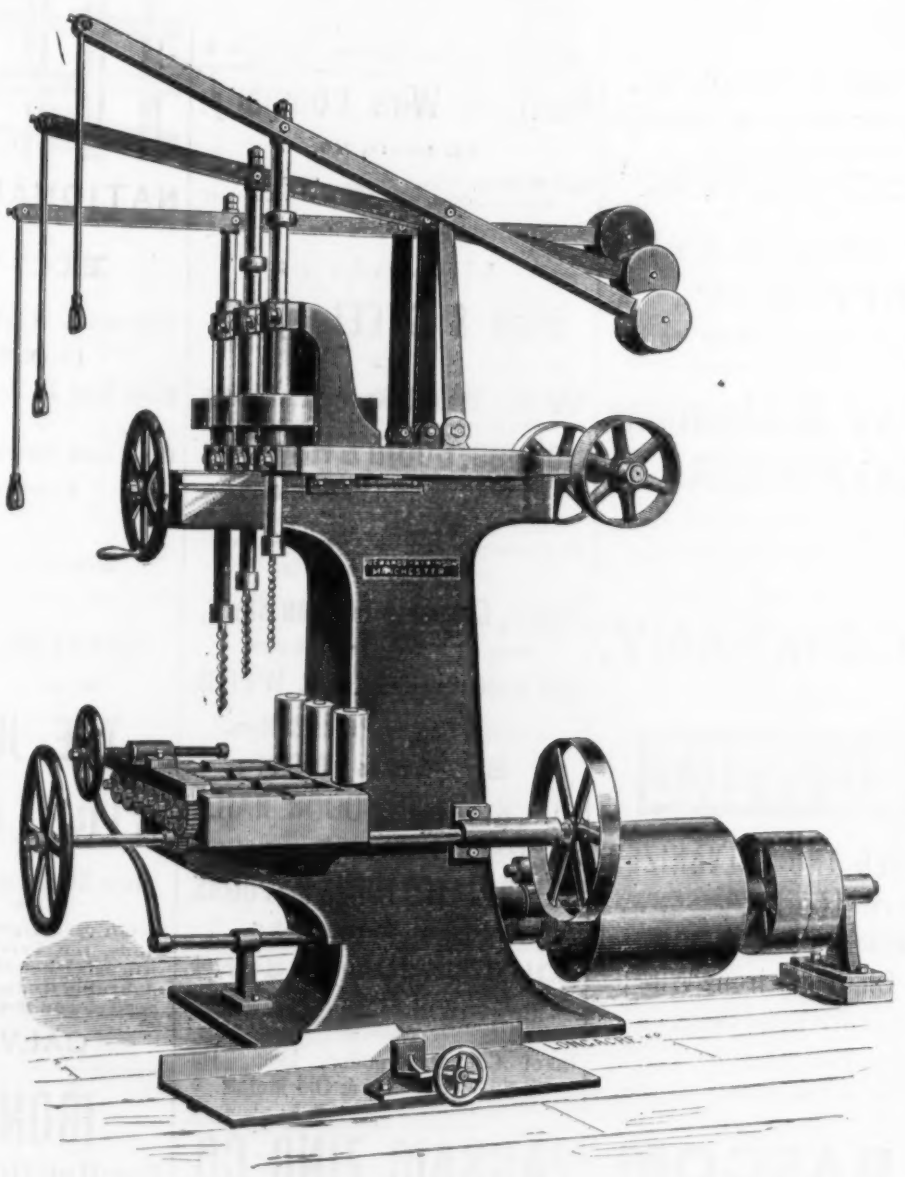
Wood-Boring Machine.

We show in the accompanying engraving a wood-boring machine, designed by Messrs. Richards & Atkinson, of Manchester, England, and 615 Walnut street, Philadelphia, Pa., for the London and Southwestern Railway Company, and constructed by Messrs. W. B. Bement & Son, of Philadelphia.

The machine has several features not embodied hitherto in what may be called car-shop boring machinery, the spindles being arranged in such a manner that gear wheels are dispensed with. Consequently the machine is noiseless, even at the high speed of 1500 revolutions of the spindles in a minute. The three spindles are of steel, 2 inches in diameter, and are provided with a traversing adjustment of sufficient range to bore at any point on the top of timbers to 12 inches square. The main feature of the machine, however, is that the timber is fed along to the right or left by power. Mr. Adams, who is one of the most distinguished among English locomotive superintendents, in refitting the works of the London and Southwestern Railway Company, at Nine Elms, London, has taken some pains to select an efficient set of machines for wood-working, and, in his instructions to Messrs. Richards & Atkinson, has called attention to the fact that in boring wood, common machines do no more than drive the augers into the wood, leaving the greater part of the labor—that is, handling and adjusting the timber—to be done by hand. The present machine was accordingly arranged with power feeding devices, controlled by friction clutches in such a manner that pieces can be moved at pleasure, to the right or left, the ends being supported on a series of roller stands, not shown in the engraving. For short pieces that require to be clamped, the table seen in front is laid up on the feed rollers, no other change being required, so that a minute's time serves to alter from long to short pieces. The weight of the machine is over 2 tons.



RICHARDS & ATKINSON'S WOOD-BORING MACHINE.

SCIENTIFIC AND TECHNICAL.

The death of a young German engineer at Dresden, caused by poisoning by

WATER COLORS CONTAINING ARSENIC,

ought to be a warning to all who use such colors to abstain from quite a common practice—that of pointing the brush by turning it between the lips. It appears that the young man in question was in the habit of doing this when drafting, and that his sudden death was directly traceable to poisoning by arsenic. The colors used by him—manufactured by Chenal, of Paris—yielded, upon chemical examination, the following percentages of arsenic:

Colored sepia	1.10
Natural "	0.98
Burnt sienna	1.76
Sienna	2.23
Vandyck brown	0.81
Brown ocher	0.52
Vessie green	0.82
Reddish brown	2.15

Great caution is, therefore, necessary.

Some time since we referred to the

PLATINUM-IRIDIUM ALLOY

manufactured by Messrs. Johnson, Mathey & Co., of London. Messrs. H. St. Clair Deville and E. Mascart have, according to the *Comptes Rendus*, analyzed the alloy intended for the international weights, with the following results:

	I.	II.
Platinum	89.40	89.42
Iridium	10.16	10.22
Rhodium	0.18	0.16
Ruthenium	0.10	0.10
Iron	0.06	0.06
	99.90	99.96

The density of the first alloy was found to be 21.508, which calculation yielded 21.510; that of the second was 21.515 and 21.516, respectively.

Since the war of the Rebellion, when balloons were first used for military purposes, they have been regarded as of value in warfare. An improvement in

BALLOONS FOR MILITARY PURPOSES

has, according to *Engineering*, been recently suggested by Mr. C. Board, of Bristol, England, whose chief object has been to make them more portable than they have been hitherto, and to prevent their rapid collapse if pierced by an enemy's fire. He proposes to build them, not, as usual, in one piece, but in parts, like the separate portions of an orange. Each of these parts is small enough to be conveyed in an inflated condition without inconvenience, and can be put together in a much shorter time than would be necessary to fill an ordinary balloon with gas. Pure hydrogen, which has a lifting power of 74 pounds per 1000 cubic feet, is used for filling, so that the volume of the balloon is as small as practicable. Mr. Board has suggested other methods aiming at the same object, but so modified as to permit transportation under such circumstances as those presented by the Zulu campaign.

In the *Chemical News* Dr. Grossmann gives the results of some experiments made on a large scale to test

CLARK'S PROCESS FOR SOFTENING MAGNESIA HARD WATER.

He made trials to soften the water, both with milk of lime and with lime water, and found that with the former the hardness was reduced from 23.3 degrees to an average of 5.4 degrees. With lime water, which has the advantage of requiring less agitating, the reduction was carried in three experiments to an average of 3.5 degrees. The softened water settled perfectly clear after three to five hours, so it was fully proved that magnesia-hard water softens as well and as easily by Clark's process as ordinary lime-hard water. It may be of interest to add that Dr. Grossmann believes the hardness test with soap solution to be defective when applied to water hardened by the solution of magnesia, the results being too high.

Two San Francisco engineers, Messrs. Molera and Cebrian, are the inventors of a

NEW SYSTEM OF ELECTRIC LIGHTING,

which in construction resembles the Higgins lamp, recently described in *The Iron Age*. Only one lamp is used to illuminate a large number of apartments. The lamp is placed near the generator of electricity and surrounded by lenses and reflectors, forming a chamber of light. These lenses are to concentrate the light into as many beams of parallel rays as may be required, which beams are then carried through pipes in the street or house to the places to be illuminated. At the bends reflectors are arranged to change the direction of the beam, and where light is wanted for one apartment, and the beam still has duty to perform in an adjoining room, only a part of the beam is bent in the first apartment. The inventors declare that they have produced 195 separate lights with a 20-horse-power engine, at a cost less than one-twentieth that of gas. The *Mining and Scientific Press* illustrates and describes an elaborate system of reflectors, by which the workings of mines are to be illuminated from one large lamp placed above ground.

At the Kilburn show of the Royal Agricultural Society, Messrs. J. Fowler & Co., of Leeds, exhibited the working of

GREIG'S PORTABLE RAILWAY,

which, with a proper modification of the rolling stock, is said to be doing excellent work under trying circumstances. The steel rails are fastened to sleepers made of corrugated steel, the corrugation giving such stiffness that the plate will not bend when walked upon. The rail is secured by a wrought-iron strap riveted to the sleeper, the former being made to fit over the outside flange of the chair. A hooked bolt, which is passed into the corrugations and is screwed up tight, presses the rail firmly against the chair. For making joints, a sleeper of double width is used. With 18-pound rails such a road will carry two tons per axle.

Mr. F. Siemens, of Dresden, Germany, like his brother, a prominent electrician and inventor, has published in the *Verhandl. z. Bef. d. Gewerbfl.* a valuable application of his

REGENERATIVE SYSTEM FOR GAS LIGHT.

Starting from the fact that the intensity of the light is increased by an increase in the temperature of combustion, he designed a number of different styles of lamps in which the air for the combustion of gas is heated by the waste gases, the supply of air being regulated by the currents produced by the difference of temperature of the air, the gas and the products of combustion. The lamp consists of three iron tubes of suitable diameters, placed one within the other, the upper portion of the lamp being inclosed in a spherical globe. The entire space inclosed by the different tubes is filled with wire netting, constituting what Mr. Siemens calls regenerators, and which serve for absorbing the heat of the products of combustion and for giving it off to the gas and the air for burning the latter. The central tube is used for conveying the gas, which enters it from below. The air is admitted from below into the annular space between the central and the second tube, while the hot products of combustion descend through the annular space between the second and the third tube. By this means the heat absorbed by the wire netting in the outer tube will be conducted and reflected to the two inner ones, and serve to heat air and gas and increase the intensity of the flame. The products of combustion rise upward within the space inclosed by the glass globe, and then descend along its sides, until they reach the annular space of the regenerator, without impeding the flow of air or gas. Mr. Siemens has constructed the lamp in such a manner that the regenerator, having a disk shape, serves as a reflector at the same time. While the construction of these lamps is not such as to make the system readily applicable to single burner lights, it is destined to enlarge or maintain within certain limits the ground which gas has been rapidly losing in its competition with the electric light for the illumination of large spaces.

Proposals for Military Supplies.—Assistant Quartermaster-General D. H. Rucker has called for proposals, to be received until noon, Aug. 20, at the Quartermaster's office, Philadelphia, for the following articles: 10,000 ax-helves, to be delivered at Jeffersonville, Ind.; and 7500 pounds screw wire, 2700 pounds Swedes lasting tacks, 2½-oz., 19,250 pounds Swedes nails of various kinds, 3850 pounds American nails, square cut, ⅝, No. 12, and 40,000 gilt buckels, to be delivered at Philadelphia.

A Sketch of the History of Hot-Blast Brick Stoves.

As an introduction to a paper describing the present construction of the Siemens-Cowper-Cochrane hot-blast stoves (see *The Iron Age*, May 1, 1879), Mr. John M. Hartman has contributed to the "Transactions of the American Institute of Mining Engineers" a sketch of the history of brick stoves, as indicated by successive patents granted both in this country and in England.

On May 19, 1857, an English patent was granted to E. A. Cowper for heating air or other gases under pressure, by means of a regenerator inclosed in an air-tight iron case, having between the regenerator and case a lining of brick. This patent provided for heating the stoves by a separate fireplace, or by gas direct from the blast furnace. A number of forms of interior arrangement of the brickwork are shown in the drawings; also hollow poppet valves with hollow stems, and a pipe inside of the stem for circulating the water; the valve seats have coil cast in them for water circulation to keep them cool; slide valves, with snake coil cast in the disks, are shown, and the use of cold air for cooling the valves is also described. The combustion chamber of these stoves was central, and openings were provided at the top and bottom to get into the stoves. These Cowper stoves are all circular in section.

November 10, 1865, an English patent was granted to Thomas Whitwell for regenerative stoves for heating air or gas, provided with cleaning openings at the top and bottom capable of being closed with fire-brick plugs and doors. The drawings show a rectangular stove inclosed in an iron case. The interior brickwork has numerous up-and-down passages through the stove, but there is no claim on the interior construction.

March 3, 1868, an English patent was granted to Charles Cochrane for a slide valve to be subjected to high heats. The disk of this valve was hollow, and had a circulation of water through it by the two hollow stems that operated it. The valve seat was detachable, and had a coil cast in it through which water circulated. The valve and seat were placed on an incline to the body, to cause the valve disk to lie on the valve seat. A cap was placed on the bottom of the body to get at the interior readily.

January 5, 1870, an English patent was granted to Siemens, Cowper and Cochrane for the construction of regenerators in fire-brick stoves, with numerous vertical passages of sufficient size to allow a brush to pass through and clean them. These passages had slight projections on the sides, to turn the air over and over as it passed through. A claim also covered the use of horizontal passages connected at each end alternately, and the use of blasts or jets of air or steam to clean the stoves. This patent was taken out in this country.

July 8, 1871, an English patent was granted to Thomas Whitwell for a cup under the poppet valves of regenerative stoves, to catch the mud deposited in the valve by the water and keep it away from the valve face. This patent was taken out in this country.

March 23, 1872, an English patent was granted to E. A. Cowper for arranging the regenerators of fire-brick stoves, whereby the flame passed up and down through the regenerators a number of times. The area of the first passage is large, and that of the subsequent passages smaller, the surface being increased by placing more openings of the same size in the passage. The larger area permits more complete combustion, and the smaller areas provide increased surface to take up the heat. By this arrangement the gas or air passed in the same direction along two or more adjacent walls or partitions. This patent is now being taken out in this country.

August 27, 1872, an English patent was granted to Thomas Whitwell for upright regenerator walls stayed by cross walls, and with cleaning doors on the top and underneath the stove. The air for the combustion of the gas was also heated by passing it through the hollow walls of the regenerator. This patent was taken out in this country.

May 8, 1874, an English patent was granted to Cochrane and Cowper for the construction of a cylindrical regenerative stove, with an ascending circular flue or combustion chamber near to one side of the interior of the stove, in combination with a regenerator occupying the remainder of the interior of the stove. The flue and regenerator are so placed that the distances traversed by the air or gas are equal, or nearly so. The apertures of the regeneratar passages at the top are narrowed, to equalize the distribution of the air or gas. This patent was taken out in this country.

May 16, 1876, an English patent was granted to Thomas Whitwell for regenerative stoves, with walls or partitions so arranged as to divide the current of air and cause it to pass in the same direction along two or more adjacent walls or partitions. Also for the use of cast-iron pipe on the chimney side of the stove, to take up the heat lost at the chimney. This patent was taken out in this country, but the cast-iron pipe is omitted in the American patent.

October 2d, 1877, an American patent was granted to Thomas Whitwell for a water-cooled slide valve, with a detachable valve-seat having a coil cast in it. The valve-disk has also a coil cast in it, and the valve-face is placed at an angle to the body to cause the valve to lie on the face.

The patents recently granted and now pending in connection with the Siemens-Cowper-Cochrane stoves, are improvements in slide valves and the use of compound nozzles to decrease the number of attachments to the stoves; the use of interlocking regenerative brick, and the utilization of the waste tuyere water to wash the gas; improvements in gas washing and the use of overhead flues, with cleaning doors; the use of piston-surging valves for cleaning the stoves, and improvements in the pipe conveying the hot blast to the furnace, and finally the use of an equilibrium valve, worked by a clock attachment, to equalize the temperature of the blast during a blow.

The first Cowper stoves could not be cleaned on account of the brick of the regenerator being laid with interstices between them, but with no continuous passage from top to bottom. The stoves worked well when new. The next step was to keep the dust out of the stoves by using large settling chambers, containing shelves for catching the gas dust. This helped the stove, but the chambers made additional expense, and they have since been abandoned.

The next improvement consisted in making numerous vertical passages with thin walls in the regenerator, which could be cleaned with a brush, or by jets of air or steam. Still later the vertical combustion chamber was placed on one side of the regenerator, causing the gas and air to travel the same distance in the stove. The diameter of the stove was diminished and the hight increased, which cheapened the stove and gave a better distribution of gas or air over the whole surface of the regenerator.

Judge Blatchford, in the United States Circuit Court, on the 22d, granted a preliminary injunction against the Gold and Stock Telegraph Company, restraining them from making a certain improvement in the insulation of submarine cables, and from constructing or using wires so insulated, except those already in use by the company. The suit was instituted by Clinton G. Colgate, who holds the letters patent granted to George Simpson for a gutta-percha insulator, and who claims that the Gold and Stock Company have infringed this patent. In a similar suit, some time since, against the Western Union Telegraph Company, in the same court, the patent was held to be valid. Judge Blatchford has referred the present case to Joseph Gutman to take testimony.

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SEE PAGE 9.

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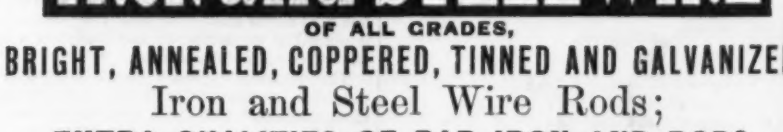

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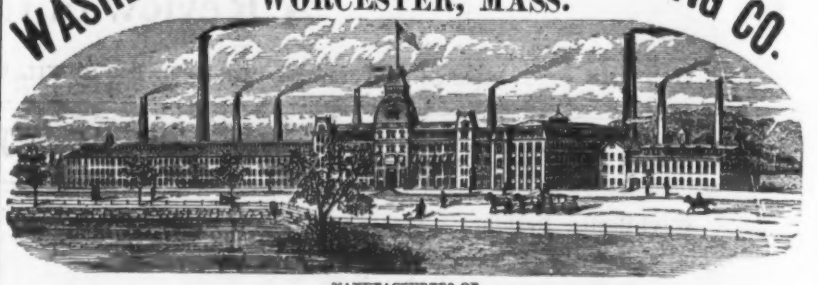

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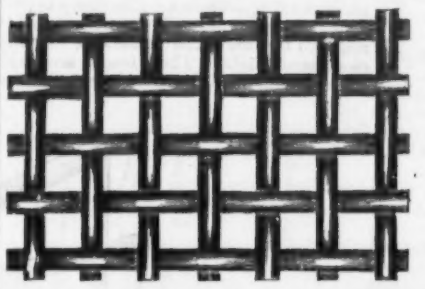

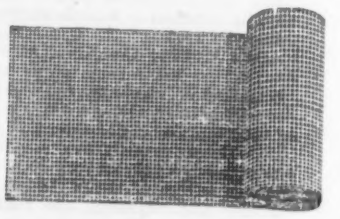

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Test of the Pumping Engines at Nashville.

The Deane pumping engines, at Nashville, Tenn., have been recently tested by two well-known hydraulic engineers, Messrs. Lane and Worthen. The tests were made under somewhat unfavorable circumstances. The water was very low in the river and its temperature very high, ranging from 88° to 90° F. Below we give the report of the engineer:

To the Mayor and City Council of Nashville.—GENTLEMEN: Agreeably to your request, and having been furnished by you with the contract with Messrs. Dean Bros., we have made the requisite test to determine whether the pumping engines furnished by these parties comply with the provisions of the contract.

Under our direction a weir has been put in the reservoir to determine the capacity of the pumps and measures arranged to ascertain the quantity of water evaporated by the boilers and the quality of the steam. In addition, all necessary tests and checks have been employed to secure accuracy of results.

The preparations having been completed, we commenced our experiments with the river, or north engine, July 11, at 11 a. m., and closed at 11 p. m., and on the 12th we tested the south engine during the same hours. The first six hours in each test was for a delivery into the reservoir, but the last six hours was under stand-pipe pressure. Both days water was forced over the top of the stand-pipe. On the 13th the north engine delivered for about two hours at the reservoir, and for about six hours into the city, under a stand-pipe pressure of from 80 to 90 pounds on the upper water gauge.

On the 14th the south engine was tested by delivering into the city under similar stand-pipe pressure.

Having completed the test, we now respectfully report that, agreeably to the terms of the contract, the delivery of the north engine for 12 hours was at the rate of 4,968,000 gallons per 24 hours, and the duty was 61,394,000 pounds feet per 100 pounds of coal thrown on the grates.

That the delivery of the south engine was at the rate of 5,063,800 gallons per 24 hours, and the duty 63,859,000 pounds feet per 100 pounds of coal thrown on the grates.

We have al o compared the machines in detail with the requirements, and we find that the pumping engines furnished by Messrs. Dean Bros. comply with the contract, although the capacity of the north engine, as shown above, is a trifle below the specified rate of 5,000,000, as there were many hours during the test in which this was exceeded.

We have been requested to give an opinion as to the durability of these pumping engines. They were designed to give a fair average duty at a very low first cost. We have given particular attention to their workings under the stand-pipe pressure to which they will be incident; they have exhibited no signs of weakness in their parts, and work with great quietness. The parts are well proportioned, and we see no reason why they should not for many years prove good and serviceable machines. It was observed, during the trials of the 11th and 12th inst., that, owing to the low stage of the river and the high temperature of the water, the vacuums in both engines were somewhat unsteady, and from the same cause a portion of the injection had to be taken from the rising main. It was therefore thought advisable to try the engines as non-condensing, and for the purpose the valves in the air pumps were removed and the steam was permitted to exhaust freely through the waste-water pipe leading from the hot well.

The north engine was tried under these conditions on the 13th and the south engine on the 14th. The results have been so satisfactory to us in the quietness of action of the engines and economy of working, that we should advise that they be so run, when the same conditions of the river obtain as at present. It may be observed here that, had the river been higher and the water cooler, the engines run as on the 11th and 12th inst. would have given higher results and duties.

By request we have looked at your present system of pipe distribution, and find it to be like all old systems inaugurated when the necessities of household and industrial economies were much less than at present—very deficient in the size of its mains, and it would be a profitable investment to remodify the system by increasing sizes and by supplementary mains. Respectfully submitted,

WM. E. WORTHEN,
MOSES LANE.

This report is of especial interest when taken in connection with the following preamble and resolutions, which were presented to the Water Works Committee shortly before the tests were completed. At the meeting the resolutions were adopted, but the preamble was stricken out:

Whereas, Citizens residing in the higher portions of the city are unable to obtain the necessary amount of water for cooking purposes, and,

Whereas, It is believed that a stand-pipe pressure turned upon the city will force a full and complete supply of water to all parts of the city and satisfy the demands of our citizens; and,

Whereas, An idea prevails in the minds of some of the officers in charge of the Water Works Department, that a full stand-pipe pressure upon the city will burst many if not all the pipes, and,

Whereas, It is believed by the Water Works Committee that the sole intention of building said stand-pipe was to enable the citizens in the higher portions of the city to obtain an ample supply of water; and,

Whereas, Said intention and purpose are about to be defeated by the influence and advice of some over-prudent and timid officers of the corporation; and,

Whereas, It is believed by this committee that it would be better to burst every water pipe in the city rather than fail to supply our citizens with an ample amount of water, after so large an expenditure of money for the water-works improvements and so many promises made as to what "the new stand-pipe would do;" therefore, be it

Resolved, By this committee, That the gentlemen now conducting the experimental test of the Dean engines be and they are hereby respectfully requested to give to the citizens of Nashville, at such time as will best suit their convenience and least interfere with the plan of their test of said engines, a full stand-pipe pressure upon the pipes leading from the reservoir to the city; that is to say, they are requested to run said engines with steam power sufficient to force the water to the top of the stand-pipe, opening at the same time *all* valves leading from the reservoir to the city, so as to force the water through said pipes to the highest possible point regardless of the bursting of the pipes by said pressure; said stand-pipe pressure to remain upon the city at least 15 consecutiv hours.

Be it further Resolved, That no officer of the corporation shall interfere or attempt to prevent the full and literal execution of the foregoing resolution.

Be it further Resolved, That the secretary of this committee transmit a copy of these resolutions to Messrs. Lane & Worthen.

A copy of the resolutions was immediately taken to the water works by Messrs. Lusk and Kuhn, where the test was going on, with some 500 persons in attendance.

In accordance with the resolution, the valves were opened, and about six o'clock the amount of steam necessary to throw water to the top of the stand-pipe turned on, and persons living in the higher portions of city report that they received from their hydrants a bold stream of water. During the trial the water was frequently thrown over the top of the stand-pipe for con siderable periods of time and presented a very beautiful appearance falling as it did from a hight of something like 275 feet.

The adoption of the resolution was thought necessary, from the fact that Superintendent Wyatt believed a full pressure would cause a number of water pipes in the city to burst.

There now seems to be no doubt in the minds of the city officials that the engines will be accepted.

An English View of American Competition.

The *Pall Mall Gazette* says: In the third number of this year's reports of her Majesty's secretaries of Embassy and Legation, there is a most interesting report by Mr. Drummond upon the trade and industry of the United States. "Everything that can possibly be thought of is," he says, "being carried out to obtain foreign markets for United States products and manufactures," but thus far it is chiefly in provisions and breadstuffs that an expansion of foreign trade has taken place. In 1878, as compared with 1877, the increase in steel manufacture was only 55,916 pounds, and in cotton manufactures it amounted to no more than 255,788 pounds. In heavy machinery his opinion is that the States cannot compete with us, but in the smaller articles they run us a close race, for this reason: "The Americans endeavor to combine strength with lightness, while we look only to strength; notice the locomotives and cars, American implements and tools which have beautiful finish and lightness, and are more convenient than ours. Take American and English scythes as an instance. I find that the American only weigh a little over two pounds, and having a good curve and polish under the surface, are handier and cut easier and closer than the English, which weigh nearly five pounds, and are broad, straight and rough, just as the hammer leaves them." This is a matter to which Dr. Drummond rightly thinks our manufacturers should give immediate attention, and the other point he urges upon them is the necessity of looking to the purity of our goods, as the Americans are making a great feature of this in their attempts to secure a footing in foreign markets. If these things are looked to, Mr. Drummond is confident of our ability to hold our own. "We have the advantage in England in our existing extensive mills and machinery, in the cheapness of living for our workmen, who can accept a smaller wage than here, and particularly are we fortunate in the immense number of our skilled hands for manual labor, but perhaps unfortunate in having too many unskilled. If our manufacturers can reduce the cost and expenses of production, look to the superiority in the quality of their goods and wares, be satisfied with small returns, show a desire to make the welfare and happiness of the workmen their own, and they mutually work with energy, I feel sure we shall see happy times again in our manufacturing population."

Wythe County, Va., Iron Ores.—Mr. James Aumann, of the University of Virginia, has made the following analyses of ores from Cripple Creek, Wythe County, where considerable bodies, easily accessible, are said to exist:

	Black ore.	Red ore.	Yellow ore.
Oxide of iron	83.07	79.35	68.32
Alumina	2.32	5.89	11.53
Water	12.96	11.72	10.83
Silica	1.09	2.73	9.87
Magnesia	trace.	trace.	100.61
Total	99.44	99.69	0.06
Metallic iron	58.15	55.54	47.82
" "	67.23	63.14	53.28
Roasted ore			

Mr. Aumann reports that not a trace of phosphorus or sulphur was found in any of the ores, which we believe were washed specimens, as the hematites found at Cripple Creek are associated with clay. It is stated by a writer in the Wytheville *Enterprise* that ores high in manganese are also found near Cripple Creek.

To Test Glue.—An article of glue which will stand damp atmosphere is a desideratum among mechanics. Few know how to judge of quality, except by the price they pay for it. But price is no criterion; neither is color, upon which so many depend. Its adhesive and lasting properties depend more upon the material from which it is made, and the method of securing purity in the raw material, for if that is inferior and not well cleansed, the product will have to be unduly charged with alum or some other antiseptic, to make it keep during the drying process. Weathered glue is that which has experienced unfavorable weather while drying, at which time it is rather a delicate substance. To resist damp atmosphere well, it should contain as little saline matter as possible. When buying the article, venture to apply your tongue to it, and if it tastes salt or acid, reject it for anything but the commonest purpose. The same operation will also bring out any bad smell the glue may have. These are simple and ready tests, and are the ones usually adopted by dealers and large consumers. Another good test is to soak a weighed portion of dry glue in cold water for 24 hours, then dry again, and weigh. The nearer it approaches to its original weight the better glue it is, thereby showing its degree of insolubility.

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The following discussion in the Pittsburgh Chamber of Commerce is as interesting as it is pithy. From the statements made we get a glimpse of the true inwardness of the water-works muddle. In spite of the seriousness of the matter, one can hardly refrain from laughing at the whole affair, so childish does the course of the people seem. The following is a report of the discussion:

Mr. Meyran called the attention of the meeting to the condition of the city's water supply, and said the Chamber should take some action in regard to it.

Mr. Anderson said he would like to have some investigation made into the gross mismanagement that existed somewhere among those who had charge of the water works.

Mr. Dravo said there had been fearful dilly-dallying between the parties interested in these water water, by which our property, in case of fire, has been jeopardized, as well as the health of the whole community. He hoped the board would get some one competent to discuss the water supply of our city before the next quarterly meeting of the Chamber.

Mr. Miller—I have already said so much on this subject, and been so smartly rapped over the knuckles for it, that I don't know whether I ought to say anything more about it or not; but I will say this, that irrespective of anybody connected or interested in it, it is a disgrace to the city, and a city of mechanics, at that. Look at the vast amount of capital lying idle, giant engines useless, and batteries of boilers that will rust before they are used. It has been going on for years at our expense, and there does not seem to be any change or improvement.

In reply to an invitation from the Chair, Mr. Young, a member of the Water Committee, made a few remarks, in which he said: "The main thing now agitating the present Water Committee is to make another connection with Hiland Reservoir, and to do this, they must either beg, borrow or steal the necessary funds."

Chair—Is the lower part of the city now supplied from the Hiland avenue reservoir?

Mr. Young—Yes; but it is through the Bedford street basin, for, owing to the size of the pipes, it is not supplied directly from the Hiland reservoir. There are many changes to be made in street mains; the Smithfield street main is now so small that it does not properly supply the wants of property owners along that street. The trouble, however, now is to find a suitable route from the Hiland Reservoir to the lower part of the city, and though various ones have been suggested, none have been decided upon. The connections necessary will cost at least $150,000. The present Water Committee are doing their best to solve the problem.

President Moorhead—I have learned a great deal from the remarks of Mr. Young, and I want to make a few statements based on experience. Nothing has bothered me so much for years as these water works, for I was one of the commissioners connected with it in its earliest days. From the remarks of the gentleman of the Water Committee, I have had one fact firmly established in my mind, and it is that when the full pressure of water from the Hiland Avenue Reservoir is turned on it will burst everything before it. It is ruin from the start. As it is now, we who reside in the lower part of the city get our water from Hiland Avenue Reservoir through the Bedford street basin, and why? Because our water mains cannot stand the pressure of water. I saw this long ago. I, with others, was appointed to see this thing in its incipiency. We secured the best hydraulic as well as mechanical engineering talent in the United States. Mr. Cheeseborough, of Chicago, with other engineers, located the Hiland Avenue Reservoir, as well as the Brilliant Hill Reservoir, the latter to serve as an intermediate basin. At that time Henry Lloyd, who was president of the commission, asked me to take the chairmanship of the Committee to construct the water works. I told him I would, but when I found out that councils were to manipulate the thing, I threw it up. I told them, however, that for $2,500,000 I could erect the water works and reservoirs, and have them completed in two years. About this time this man Lowry loomed up, who has a mania for ponderous machinery, giant engines and such things. They abandoned Brilliant Hill Reservoir, after the work had been commenced on it, and foreseeing the danger that has been spoken of to-day, I went to councilmen and pleaded with them. I told them it would ruin every bit of plumbing in the lower part of the city, and it will so eventually prove. We have these giant engines useless now, and what will we do with them?

I would favor going back to the commencement if we must, and begin now by throwing them out, for it would be cheaper in the end. This whole affair is the worst piece of mismangement I have ever met with in my public life.

Mr. Anderson said that Col. Werrell, one of the best hydraulic engineers in the country, said the people of Pittsburgh were the greatest fools he ever saw to squander so much money for such monster engines. He said that we could have purchased a pair of Cornish pumping engines for $50,000 apiece, and whose merits are known all over Europe, and that they would have pumped water enough for our city for 30 years to come. He said then that it would eventually ruin our city, and it is so now. I know it is a bungled job—we all know it—and no sane man can deny it.

The Chair appointed Messrs. Meyran, Dravo, McIntosh and Miller as a committee to investigate the facts regarding the matter discussed, and report at the next meeting of the Chamber, which will be held the first Monday in September.

The Production of Pig Iron in the North of England.—The production of pig iron in the North of England has, according to the returns of the Cleveland Iron Makers' Association, been decreased 204,674 tons in the first six months of 1879, compared with the corresponding period of 1878. The production in the first half of 1878 was 1,032,220 tons, and in the first half of 1879 it was 817,546 tons. This is a reduction of 20 per cent. in the output of the Cleveland district. The half year just closed was commenced with a total stock of 337,337 tons of Cleveland iron, while at the close only 295,491 tons were held, the reduction being 41,846 tons, or a little less than 12½ per cent. Of 165 furnaces built in the district, only 84 are now in blast.

The Old Ferries of New York.

The Jersey City Ferry dates its existence back to the year 1764, when two periaugers (two-masted boats, pointed at both ends) plied between Courtlandt street, New York, and Paulus Hook, Jersey City, landing about where Grand street now is. The establishing of a ferry at that point was then deemed a great public convenience in connection with the stage route to Philadelphia. It was also considered a good speculation, and three years later the New York Common Council resolved to charge £310 a year for a lease of the ferry privileges. But at that price the lessee found his receipts not sufficient to meet his expenses, and long before its expiration he abandoned the lease. For the next 20 years the ferry was leased for short terms and at decreasing rents, until, in 1789, a three years' lease was granted at £50 a year. But this last lessee prospered so well that when his lease expired the City Fathers charged him £380 for a renewal, and required him to run two large sail-boats for teams and two row-boats for passengers, from sunrise until 9 o'clock p. m.

With an eye to the public's welfare, the Council, in 1799, adopted a schedule of prices to be charged for carrying passengers and articles across the river, some of which were: For a passenger, 9d.; a coach, 8/; a sleigh, 2/6; horses and cattle, 1/9; a large trunk, 1/; a small one, 2d.; barrel of beef, &c., 1/; a plank of every kind, 1½d.; a feather bed, 6d.; cabbages, per 100, 1/6. These rates were regarded by Jerseymen as a little exorbitant, so much so that they held an indignation meeting and forwarded their protest to the Council in New York. It failed, however, to secure any reduction in the tolls. In 1802 the ferry lease brought $2,125, and in 1804 the "Jersey Associates" were incorporated and became the purchasers.

In 1810 arrangements were made with Robert Fulton to construct steam ferry-boats and on the 2d of July, 1812, one named the Jersey was put in operation. The event was celebrated with a grand banquet given by the Jerseymen to the New York Common Council. A correspondent, writing to a newspaper of the time, says:

"I crossed the North River yesterday in the steamboat with my family in my carriage without alighting therefrom, in 14 minutes, with an immense crowd of passengers. On both shores were thousands of people viewing the pleasing object. I cannot express to you how much the public mind appeared to be gratified at finding so large and so safe a machine going so well."

This "large machine" was 80 feet long and 30 feet wide.

A year later the York was put on with the Jersey. They were supposed to run every half-hour from sunrise until sunset, but frequently an hour was consumed in making a trip. The following is Fulton's description of the boats:

"She is built of two boats, each 10 feet beam, 80 feet long, and 5 feet deep in the hold, which boats are distant from each other 10 feet, confined by strong transverse beam knees and diagonal traces, forming a deck 30 feet wide and 80 feet long. The propelling water-wheel is placed between the boats to prevent it from injury from ice and shocks on entering or approaching the dock. The whole of the machinery being placed between the two boats, leaves 10 feet on the deck of each boat for carriages, horses and cattle, &c.; the other having neat benches and covered with an awning, is for passengers, and there is also a passage and stairway to a neat cabin, which is 50 feet long and 5 feet clear from the floor to the beams, furnished with benches and provided with a stove in winter. Although the two boats and space between them gave 30 feet beam, yet they present sharp bows to the water, and have only the resistance in the water of one boat of 20 feet beam. Both ends being alike, and each having a rudder, she never puts about."

However, the ferry company, with its steamboats, met with about the same success as most of the former lessees. Its dividends were few and far between, so that in 1824 it found itself wrecked financially. With the Common Council's consent, the lease was assignd to Samuel Swartwout & Co., who, after a trial of about eight years, surrendered it back to the Jersey Associates, and by them the ferry was let to the New Jersey Railroad and Transportation Company, which in 1853 became the owner by purchase. The Pennsylvania Railroad Company's present lease is for 99 years.

Trade with Australia.—From statistics compiled by the Secretary of the United States Commission to the Australian Exhibitions, it appears that there were loaded in this country for Australasia during 1878, 74 vessels, with an aggregate registered tonnage of 50,463 tons; of this number 56 were from New York and 18 from Boston. During the first six months of the present year there were dispatched 35 vessels, with an aggregate registered tonnage of 25,919 tons; of these 26 were from New York and 9 from Boston. Twelve vessels cleared in 1878 and 5 have cleared this year for Sydney, New South Wales, direct.

The first freight cars built for the Pennsylvania Railroad carried 6 tons, then their carrying capacity was increased to 8, 10, 12, 15, and they are now building them to carry 20 tons. The next jump will be 30 tons, not of grain, but iron and other dead weight freight. During the removal of the wreck of the Pittsburgh fire one car brought to this city at one load 35 tons net of the debris. Seventeen tons of coal are carried now in small coal hoppers. The immense traffic on the road comparatively requires larger carrying capacity than light cars.—*Altoona Tribune.*

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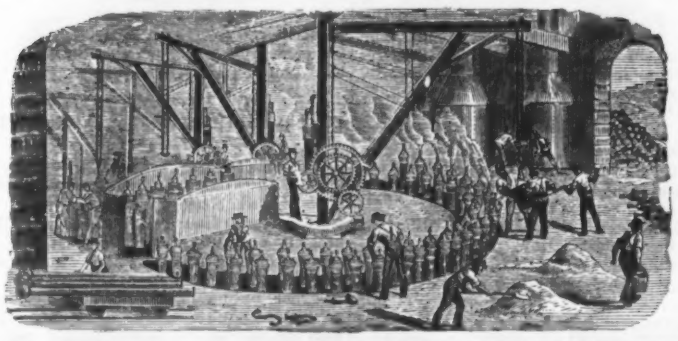

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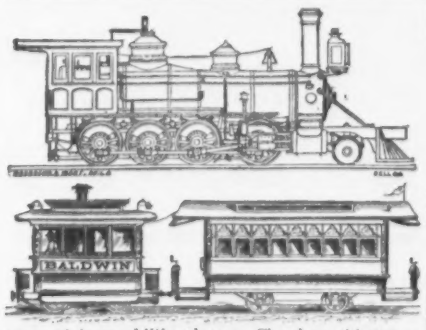

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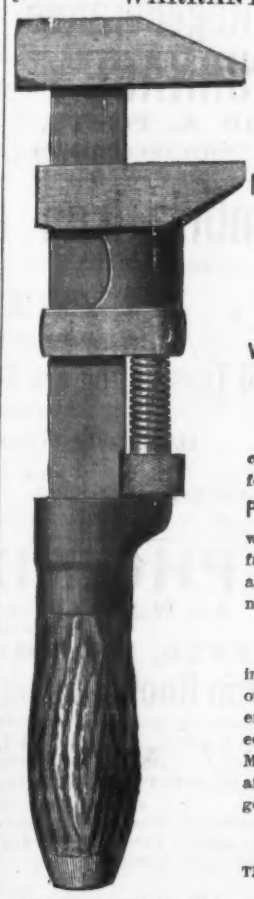

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The Australian Exhibitions.

Mr. O. M. Spencer, United States Consul General at Melbourne, Australia, transmits to the Department of State a very full report of the proposed exhibitions at Sydney and Melbourne. The first opens on the 1st of September, 1879, and will close on the 31st of March, 1880. That at Melbourne opens on the 1st of October, 1880, and closes on the 31st of March, 1881. This exhibition will be held in the Carlton Gardens, comprising an area of 65 acres. Nearly all of the leading European governments have signified their intention of being present by royal commissioners. All of the Australasian colonies have entered heartily into the enterprise. The English government has taken a warm and decided interest in it. The Prince of Wales and others of the royal family will visit the Exhibition. The Duke of Genoa will come out in an Italian man-of-war, and France and Germany will be represented in a similar manner. The relation which exists between the Sydney and Melbourne exhibitors is one of generous rivalry and cordial co-operation. The two cities will soon be connected by railway. There are several lines of steamships now plying regularly between the two places, with low rates for freight. The expense of transferring goods from Sydney to Melbourne will be moderate, including storage. Goods will be received at the latter Exhibition building on the 1st of June, 1880.

All the usual facilities accorded at previous international fairs in other countries will be liberally afforded at Melbourne. The protection of inventions capable of being patented is fully secured. Should the United States decide not to send out a man-of-war, it is advisable to ship all heavy goods in sailing vessels, via the Cape, not later than Februray, 1880. Goods from the Pacific slope and parcels of great value and small bulk may be shipped via San Francisco by the Pacific Mail Steamship Company, which runs a monthly line of steamers from San Francisco to Sydney. Show cases, shelving, belting, &c., may be procured in Melbourne at low rates, at the cost of the exhibitors.

Railroads of the United States in 1878.

From advance sheets of Poor's "Manual of the Railroads of the United States," for 1878–9, we take the following data relating to the record of construction, the gross and net earnings, capital, funded debt, and dividends of the railroads of this country:

For the first time for several years, a very decided recovery of the railway interest of the country from its recent exceedingly depressed condition can be reported. During the year ending December 31, 1878, 2694 miles of new line were opened, the total mileage in operation in the United States at that date being 81,841 miles. The construction of these routes has again been entered upon with renewed activity and spirit, and is likely to continue. As not one-half of our public domain is yet occupied, it is fair to assume that not one-half of our future railroad mileage has been built. Its construction will proceed rapidly till we have a mileage exceeding twice its present extent. It is certain to keep pace for a long time, in the older States, with the increase of their population and of their commercial and industrial development. In the new States and Territories the progress of our railroads keeps pace with that of our people, supplying the avenues through which new lands are reached and their products sent to market.

A remarkable feature in the railroad operations of the country for several years past, has been the enormously increased tonnage in the face of a large falling off of earnings. The decline in earnings has been due to very great reductions in charges for transportation. Within the last decade the tonnage traffic of our railroads longest in operation has been fully doubled, while there has been only an inconsiderable increase in earnings from this source. Since 1873, the year in which the earnings of our railroads reached their maximum, the increase of their tonnage has equaled 50 per cent., although the period has been one of unexampled business depression. At the very time at which there has been the greatest complaint of hard times, the movement of merchandise has steadily and largely increased. The tonnage of the New York Central and Hudson River Railroad in 1867 equaled 3,190,840 tons; in 1873, 4,393,955 tons, and in 1878, 8,175,535 tons. The earnings from freight on this road in 1867 equaled 14,066,386; in 1873, $19,616,017; and 1878, $19,045,830. The tonnage for the past five years increased over 86 per cent., while the earnings were slightly reduced. The rate for the transportation of freight in 1873 equaled 1.572 cents per ton; in 1878, 0.910 of a cent per ton per mile. The vast increase of tonnage on this and other roads for the past five years is a most encouraging feature, as, with a revival of general prosperity, which is showing itself on every hand, the railroads will themselves start upon a new career, with an ample tonnage traffic, the rates on which are only to be slightly increased to add enormously to their net earnings. Had the rates of 1873 on the New York Central and Hudson River Railroad been maintained, the earnings of that road the past year from freight would have equaled $31,000,000, in place of $19,045,830, the amount received. The experience and example of this road may serve as an illustration for those of the whole country.

Another favorable feature connected with our railroads is the reorganization of the affairs of great numbers of those that had become pecuniarily embarrassed. Their reorganization has, as a rule, been upon a plan, or scheme, to reduce their interest-bearing securities to a sum the interest on which could in all probability be met by the accruing incomes, leaving dividends on common or preferred stock to be paid as earned. Such an arrangement will have the advantage to place these enterprises upon a firm and stable foundation, and will help to give a market value to their securities somewhat in ratio to their actual value. The reorganization of our railroads cannot fail to exert a most salutary influence upon the general business interests of the country.

There have been constructed in the United States since the great crash in 1873, and within a period of five years, 11,563 miles of railroad. In the same time the increase of population in the country has equaled fully 7,000,000. The greater part of this increase has been in the extreme Western and in the mining States and Territories. A corresponding demand has been created for the products of manufacturing and commercial industries of the Eastern States. Labor is, in fact, more productive in the new States and Territories than in the older States. With the general recovery witnessed on every hand, and with an enormous balance of trade with foreign countries in our favor, there is every reason to believe that the country—and particularly its railroads—is entering upon a career of unwonted prosperity. During the recent long-continued depression, the means for a lucrative traffic for our railroads for the future have, strange as it may seem, been created. A most encouraging feature is their rapid construction through the territories surpassingly rich in the precious metals. Every mile constructed adds to the traffic of those already in operation. It seems probable that within a little more than a year another railroad—the Southern Pacific—will be constructed across the Continent, and that the Northern Pacific will soon be able to reach the base of the Rocky Mountains, opening the newly-discovered deposits of the precious metals in that quarter, as well as a vast and fertile extent of public lands.

The gross earnings of all the roads whose operations have been reported, have equaled $490,103,361, against $472,909,272 for 1877, $497,257,959 for 1876 and $503,065,505 for 1875. The general result of the operations of our railroads for the last eight years is shown in the following statement:

STATEMENT

Showing Miles of Railroad, Capital Account, Earnings, &c., for Eight Years.

Year.	Miles operated.	Capital and funded debt.	Gross earnings.	Net earnings.
1878..	78,960	$4,580,048,793	$490,103,361	$187,515,177
1877..	74,112	4,508,597,248	472,990,272	170,976,697
1876..	73,508	4,468,591,935	497,257,959	186,452,752
1875..	71,759	4,415,631,630	503,065,505	185,506,438
1874..	69,273	4,221,703,594	520,466,016	189,570,958
1873..	66,237	3,784,543,034	526,419,935	183,810,562
1872..	57,323	3,159,423,057	465,241,055	165,754,373
1871..	44,614	2,664,627,645	403,329,208	141,746,404

Year.	Freight earnings.	Passenger earnings.	Dividends paid.
1878.....	$365,466,071	$124,637,290	$53,629,366
1877.....	347,704,048	125,204,724	58,556,313
1876.....	361,137,376	136,120,583	68,039,668
1875.....	363,960,234	139,105,271	74,294,208
1874.....	379,466,935	140,999,081	67,042,942
1873.....	389,035,508	137,384,427	69,120,709
1872.....	340,931,785	132,309,270	64,418,137
1871.....	294,430,322	108,898,886	56,456,681

Classifying the States by their geographical position, as usual, it will be seen that the gross earnings for the New England States were $41,260,203, against $44,590,465 for 1877. Of these earnings $23,292,437 were received for transportation of freight, mails, &c., and $17,967,766 for the transportation of passengers. The net earnings were $13,685,927, against $13,735,746 for 1877. The dividends paid amounted to $7,566,655, against $6,977,726 for 1877.

The gross earnings of the railroads in the Middle States were $155,458,968, against $155,943,121 for 1877. Of gross earnings $119,505,761 were received for transportation of freight, mails, &c., and $35,255,780 for transportation of passengers. The net earnings were $61,559,993, against $61,033,039 for 1877. The dividends paid amounted to $21,148,442, against $24,890,480 for 1877.

The gross earnings of the railroads in the Southern States were $42,797,284, against $39,812,358 for 1877. The net earnings were $15,379,958, against $12,664,346 for 1877. The dividends paid amounted to $2,805,799, against $2,740,793 for 1877. The earnings from freight, mails, &c., were $31,576,270, and from passengers, $11,221,014.

The gross earnings of the railroads of the Western States were $209,852,275, against $193,204,516 for 1877. The net earnings were $77,958,229, against $66,085,243 for 1877. The dividends paid amounted to $19,341,222, against $14,556,462 for 1877. The earnings from freight, mails, &c., were $160,856,795, and from passengers, $48,995,480.

The gross earnings of the railroads in the Pacific States were $10,082,491, against $7,766,922 for 1877. Of the gross earnings $2,104,501 were received for the transportation of passengers, and $5,436,845 for the transportation of freight. The net earnings were $3,501,625, against $2,655,137 for 1877. The dividends paid were $930,000, against $240,000 for 1877.

On the Pacific railroads the earnings aggregated $30,652,130, against $32,170,082 for 1877; of this sum $8,435,322 were derived from passengers, and $22,216,808 from transportation of freight, mails, &c. The net earnings were $16,489,425, against $15,053,582 for 1877, and the dividends, $1,837,250, against $7,281,640 for 1877.

The following table will show the number of miles of railway constructed each year since 1870 and the miles in operation:

Year.	Miles in operation.	Annual increase of mileage.
1870.....	52,914	6,070
1871.....	60,283	7,379
1872.....	66,171	5,878
1873.....	70,278	4,107
1874.....	72,383	2,105
1875.....	74,096	1,712
1876.....	76,808	2,712
1877.....	69,147	2,339
1878.....	81,841	2,694

Advices from Brazil, under date of July 5th, contain the following items of interest: In regard to the proposed permanent exhibition of American manufactures here, it seems to have got at last upon a substantial basis. A very fine and commodious building, the Rio Skating Rink, has been secured, and two residents of repute and means have associated themselves with it. Since last advices Johnston, Pater & Co., of Pernambuco, have failed. They were extensive import and export merchants, and carried on a large trade with the United States. They were also agents and part owners of the Merchant line of steamers trading from New York to Brazil.

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THE NEW AMERICAN FILE COMPANY have the exclusive right to use the Bernot process for cutting Files. By this method all the advantages of hand cutting are secured, together with an accuracy unattainable in hand work. They are the only manufacturers who employ machinery for testing Files and Steel.

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MADE FROM IMPORTED STEEL. EVERY FILE WARRANTED.

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Paris, 1878. *For Superiority.*

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Manufacture and keep in stock a full line of **FILES** and **RASPS** only, for which we claim special advantages over the ordinary goods, and ask domestic and foreign buyers to allow us to compete for their trade.

Superiority acknowledged wherever used, sold or exhibited.

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THE PATENT PARAGON FLY TRAPS

The Best in the Market.

Price Lists mailed on application.

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MANUFACTURERS OF

Angular and Upright Boring Machines,
Boring Machine Augers,
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Screw-Driver Bits,
Taper Pod Gimlets,
Taper Pod Gimlet Bits,
Countersink Gimlet Bits,
Long Millwright Solid Cast-Steel Augers,
Long Rafting Solid Cast-Steel Augers,
Coopers' Doweling Bits and Boat-Builders' Bits,
And all kinds of Machine Bits made to order.

RIPLEY MANUFACTURING CO.,

Unionville, Conn., U. S. A.

BEST PORCELAIN-LINED LEMON SQUEEZERS

"Common Sense" Mouse Traps.

HAND-MADE ROSEWOOD FAUCETS.

Housefurnishing Hardware.

FOR HOME AND EXPORT TRADE.

[See advertisement in *The Iron Age* of July 3, 1879.]

WHEELER & MELICK CO.,

ALBANY, NEW YORK, U. S. A.,

Manufacturers of

IMPROVED FARM IMPLEMENTS AND MACHINERY.

Sold by the hardware trade

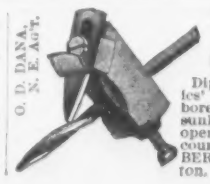
"DRAW CUT"

BUTCHERS' MACHINES.

Choppers, Hand and Power Stuffers, Lard Presses.

Warranted thoroughly made and the BEST IN USE.

MURRAY IRON WORKS, Burlington, Iowa.



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BARBER'S PATENT COUNTERSINK.

Diploma awarded at Mechanics' Fair, Boston, 1878. Hole bored any depth, and countersunk for any size screw at one operation. $2 per doz.; discount in quantity. D. F. BARBER, 1321 Washington St., Boston.

FILES & RASPS,

Established 1868.

Best Cast Steel.

HAND-CUT. Manufactured by

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No. 1 Commercial Street, Newark, N. J.

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O. Ames & Sons, Shovels, Spades and Scoops.
A. Field & Son, Tacks, Brads, Nails, &c.
G. F. Warner & Co., Carriage Clamps.
We have also on hand a general assortment of Hardware

THE GIANT PAD LOCK.

Manufactured by

THE SMITH & EGGE MFG. CO.

(Centennial Award.)

"Superior in Every Respect,"

This is one of the best selling Locks in the market, and affords the dealer a large profit. It is thoroughly and strongly made—of the best material—very handsome in appearance, and every Lock is warranted. Orders solicited. Address as above

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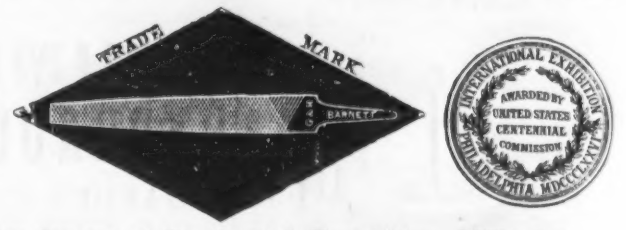
Black Diamond File Works.



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CHARLES B. PAUL,

Manufacturer of HAND CUT FILES.

Warranted CAST STEEL. 187 Tenth Street, Williamsburgh, New York.

All descriptions of Files made to order. Price List mailed on application. Established 1863.

THE STANLEY WORKS,

MANUFACTURERS OF

Wrought Iron Butts, Hinges AND DOOR BOLTS,

Plain, Japanned, Bronzed and Plated.

We are prepared to furnish all kinds of

WROUGHT IRON BUTTS, both Common and Bright Finish.

FACTORIES: New Britain, Connecticut. WAREHOUSE 79 Chambers St., New York.

SABIN MFG. CO.,

MONTPELIER, VT., Manufacturers of

PATENT DOUBLE ACTING SPRING BUTTS

Sabin's Lever Door Springs

For Heavy Doors.

The BOSS and CROWN SPRINGS for Screen and Light Inside Doors.

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HARDWARE MANUFACTURERS' AGENTS, as follows:

Lawrence Curry Comb Co., Curry Combs.
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Geo. M. Eddy & Co. Measuring Tapes.
Wheeling Hinge Co., Hinges and Wrought Butts.
Northwestern Horse Nail Co. Horse Nails.
A. G. Coes & Co., Coes' Genuine Screw Wrenches.
F. K. Silby, Emery Cloth.
Holroyd & Co., Stocks & Dies.
Sedgwick Mfg. Co., Butter and Flour Triers, etc.
Ripley Mfg. Co., Mouse Traps.
Sam'l Loring, Plymouth Tack & Rivet Works.
Carr, Crawley & Devlin, Miscellaneous Hardware & Cast Butts.
J. Mallinson, Cast Steel Shears and Scissors.
Ketchem's Pat. Metallic Sieves.
W. D. Turner & Co., Geneva Hand Fluters.
D. B. Niles & Son, Hand and Sleigh Bells.
C. S. Osborne & Co., Compasses, Calipers, Dividers, &c.
C. W. Maguire, Brushes.
Clark Bros. & Co., Carriage Bolts, &c.
Loserre & Tucker, the Genuine Knox Fluting Machine.
T. B. Barclay, "Dodge's" Kentucky Cow Bells.
Lane Bros., Swift's and Grocers' Coffee Mills and Measuring Faucets, &c.
T. C. Richards Hardware Co. Bright Wire Goods, Picture Nails, &c

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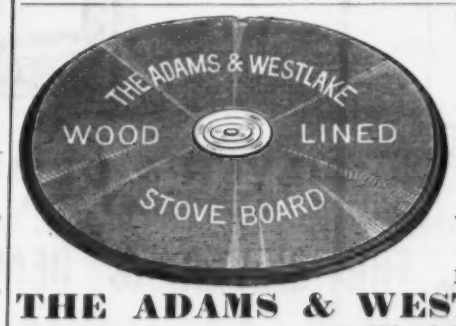

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Wood-Lined and Plain Zinc

STOVE BOARDS.

NEAT AND SUBSTANTIAL.

Will not warp or lose their shape. Easily kept clean.

For sale by Hardware and Stove Dealers.

THE ADAMS & WESTLAKE MFG. CO.,

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Sole Manufacturers of Mann's Tin-Rim Sieves.

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Bush Tacks, Looking Glass Tacks, Picture Frame Points, &c.

New York Salesroom, 116 Chambers Street.

AMERICAN TACK CO., Fairhaven, Mass.

INDUSTRIAL ITEMS.

VERMONT.

Work at the St. Albans Foundry is unusually brisk, it being occupied chiefly in the manufacture of mowing machines, horse-powers and threshers, car wheels and rolling mill machinery. More hands than usual are employed.

MASSACHUSETTS.

The Boston Lead Company, formerly carried on by J. H. Chadwick & Co., and since their failure by Samuel Little, Phineas B. Smith, Jr., and Edward Sands, as trustees, has passed into the hands of a new company, to be known as the Boston Lead Manufacturing Co., with a cash capital of $300,000.

The American Shade Roller Company contemplate building a factory at Watertown, 175 by 50 feet, and four stories in hight, which will furnish employment to some 50 or 75 hands. The company now manufacture their goods in three separate locations in Boston, and the proposed change is in order to bring the business under one roof.

CONNECTICUT.

On the morning of July 27 a fire destroyed the works of the Hartford Foundry and Machine Company, burning a good part of the machine shop, where valuable work, including much heavy gearing for the Grant Locomotive Works, of Paterson, N. J., was in progress, and all of which was more or less injured. The total value of the machinery, stock and tools was about $55,000; the loss from $20,000 to $25,000, and the total insurance, $18,968.75. The fire is supposed to have been of incendiary origin.

NEW YORK.

The coroner's jury in the case of Irving Hall and Laban Sotor, who died from injuries received at the late accident at the East Buffalo round-house, have returned the following verdict: "That they came to their death on the 19th day of July, 1879, through injuries sustained by the falling of the trusses used in the construction of the roof of the Erie round-house at Buffalo; that said trusses were not safely and properly secured in their places; that the labor employed by the Leighton Bridge and Iron Company and the supervision at the time of the accident were inexperienced and incompetent, and that the Leighton Bridge and Iron Company are responsible for the accident." The examination has been very rigid, occupying about a week.

Quite a demand for American windmills has sprung up in the British colonies, the West Indies and South America. Within a fortnight A. J. Corcoran, of New York, has shipped about a dozen, including three to the Cape of Good Hope, three to Havana and others to Pernambuco, Buenos Ayres, Barbadoes, Caraccas and Guayquil, Mexico. In addition, two mills are being shipped on the ship E. W. Stetson for England. Last winter 50 mills were sent to New Zealand in a single lot. Most of these mills have a wheel 12 feet in diameter, and are used for irrigation.

Nearly 1000 men are employed in the car shops at West Albany.

The Pitts Agricultural Works at Buffalo have been burned. Total insurance, $106,000.

NEW JERSEY.

The Paterson Locomotive Works are very busy, having contracts on hand for engines for the Erie, Union Pacific, Manhattan Elevated, St. Louis, Kansas City and Northern, and several other Western and Southern railroads, as well as three for South and Central America.

PENNSYLVANIA.

Messrs. Forbes Holton and John Jones, of Newcastle, have leased the old Union Glass Works, and are putting it in order for running. They expect to be ready to start up some time in September.

Four furnaces, two sheet mills, one nail factory, glass works, three foundries and several machine shops are now in full blast in Newcastle.

The Pottstown *Ledger* says that every industrial establishment in that place will soon be employed, all of which seems to prove the assertion that the times are growing better.

The Monocacy Furnace was fired at 9.49 on Sunday evening, the 20th. Ten hours afterward the blast was connected, and on Monday afternoon at 4 o'clock the first cast was made, yielding 14 tons of the best No. 1 iron.

The Philadelphia and Reading Coal and Iron Company recently purchased the Ringgold Furnace, and took possession of it last week. It is expected that the fires will be started in a few days.

A few mornings since the puddle mills of the Allentown Rolling Mill Company started up. The merchant mill has been going about a week. Now that the differences between the puddlers and the company have been harmonized, it is believed that in a short time the whole establishment will be put in operation.

Stack No. 2 of the Alientown Rolling Mill Company's furnace has been lit up and blast put on. Thus seven of the nine furnace stacks in Allentown are in operation.

At J. H. Sternbergh's nut and bolt works, Reading, business is unusually brisk. About 140 hands are employed, being nearly twice the number employed last year.

The new furnace to be erected by Mr. Powel at Bedford, will be completed about the 1st of next June. The capacity of the furnace will be from 40 to 50 tons of pig iron per day.

The nail factory of Messrs. E. & G. Brooke, at Birdsboro, has stopped for repairs, which will require about six weeks to complete. A new upright "West" engine will be put in to drive to the puddle train and another set of puddle, rolls. To do this will require the foundations to be taken out and rebuilt. One puddling furnace will be removed to another place and three new ones built. A "Tyler" iron water wheel will replace an overshot, in order to make more room in the mill.

The anthracite furnace of Peacock & Thomas, in Lancaster, which has been out of blast since 1875, was started again on the 24th. Miss Sallie Peacock, eldest daughter of the senior partner, A. H. Peacock, applied the match. The firm expect to turn out 140 or 150 tons of first-class foundry iron per week.

It is reported that Cleveland parties are about to purchase the mills of Reis, Brown & Berger at Newcastle.

The Rock Hill Iron and Coal Co., at Orbesonia, will blow in their No. 2 furnace the second week in August.

The Hope Iron Co., Limited, of Pottstown, have begun the erection of two more double puddling furnaces. This will make in all 12 furnaces. The large demand for the puddle iron manufactured by this company has necessitated this step.

The recent announcement that Robert Bland, of Reading, was said to be negotiating for the lease of the Mary Ann Charcoal Furnace, in Longswamp township, owned by Horatio Trexler, is declared by Mr. Trexler to be erroneous. He says that Robert Bland has not been negotiating for its lease, that he does not propose to lease said furnace to anybody, but will himself in due time put it in operation.

The Ormsby Furnace, at Sharpsville, was blown in on June 30, and will hereafter be known as the "Mabel." Messrs. Perkins & Co., Limited, with S. Perkins, Jr., chairman, and J. F. Rhoades, secretary and treasurer, is the name of the new firm, they having purchased the property lately. They are now working on a contract for Bessemer iron.

"Tubal Cain," in the Sharon *Herald* of the 25th inst., says: At the Westerman Iron Co.'s works, puddle, guide, sheet and hoop mills double turn, bar and plate mill, single turn. At the Atlantic Works, puddle, guide, old hoop mill, double turn; new hoop and bar mill, single turn; plate mill and nail factory off Monday for the want of iron. In Sharpsville, the Perkins Furnace is up to 30 tons a day, Bessemer.

The Gautier Steel Company, Limited, of Johnstown, Pa., have issued a circular, in which they give the following interesting figures of annual capacity: Steel, 20,000 tons; wire, 20,000 tons; carriage springs, 50,000 pairs; horse-rake teeth, 45,000 sets; steel finger bars, 60,000. Their list of products includes nearly everything in the shape of crude and manufactured steel, and covers over 100 items, with tool steel, plow steel and toe-calk steel as leading specialties. Although formed but a little more than a year ago, this company has the largest working capacity for manufacturing steel in bars, sheets, wire, springs, &c., of any works in America. Their machinery is of the best and most improved patterns, and everything about their extensive establishment shows good management and an eye to future development.

Messrs. Kimball & Kimball, of No. 639 Arch street, Philadelphia, manufacturers of band-saw machines, &c., exhibited the other day some samples of band saws of extraordinary length and perfection of temper. One of these saws was fully 400 feet in length, another 250 feet, and a third in the neighborhood of 200 feet. There were a number of others of shorter measurement, but extending far beyond the ordinary dimensions. The teeth of all these saws, when narrowly examined, were found to be exactly similar and without a flaw, while the temper was absolutely equal throughout. The saws can be made of any temper, ranging from those suitable to the softest woodwork up to those capable of cutting brass. They are turned out in lengths of 1000 feet, and then cut in lengths to suit customers. The fact of its being possible to construct a band saw of such continuous length, with perfect teeth and setting, and also equal in temper, naturally attracted considerable attention, and orders were received from many of the largest firms in the city.

PITTSBURGH AND VICINITY.

The report that the Scottdale mill, belonging to Messrs. Everson, Macrum & Co., was shut down is not correct. This mill has never shut down for more than a few days at a time, and then for the purpose of making repairs to machinery. The puddling department was shut down for a few days, however, putting in a new shaft on squeezers, but the sheet mills were running as usual.

The Harmony Foundry and machine shop at Beaver Falls have consolidated with the car works, and will be known hereafter as the Beaver Falls Car Works. The foundry will mold all the cast iron work used in the manufacture of the cars, except the wheels. An addition will be built to the works at once, and 100 men will be employed.

Ground has been broken for the new flint glass factory of Atterbury & Co., on the Southside. A ten-pot furnace is to be erected.

The shovel works of H. M. Myers & Co., Beaver Falls, are running eleven hours a day in order to fill orders on time.

A portion of Schoenberger & Co.'s nail factory resumed operations on Monday.

The new rolling mill of the National Tube Works Co., at McKeesport, is rapidly approaching completion, and will probably be in operation about the first of September. Four double Siemens puddling furnaces are finished, and the other four, for which room is left, are not to be built at present. The roll trains are being erected. Among these will be a three-high universal mill on the Lauth system, and a continuous mill, with 13 pairs of rolls, alternately horizontal and vertical, in which a billet will be reduced to a tube sheet, scarfed, and formed into a skelp, all at one operation. A Dudgeon steam hammer has been erected for the purpose of shingling the puddle balls.

Nearly all of the mills of this city are connected by telephones. Over 200 miles of wire is used in making the connections.

There have been nearly 16,000,000 of the Verona nut locks made and sold by Messrs. Metcalf, Paul & Co.

Corry's coal works at Braddock's are running steady this summer, as is also their coke ovens, from which a large amount of coke is turned out.

The Edgar Thomson Steel Works are so pressed with orders that they will not stop this summer for much-needed repairs. They are refusing all orders for blooms, billets and slabs for rolling, for which they had quite a trade. It is also stated that they have orders sufficient to run their rail mill until January.

At Mansfield, all the mines, Lindsay's glass house and the Novelty Works are running steadily, and a portion of the coke

Cutlery.

FRIEDMANN & LAUTERJUNG,

Manufacturers of

PEN AND POCKET CUTLERY,

Solid Steel Scissors, Shears, Razors, &c.

Sole proprietors of the renowned full concave patent

"ELECTRIC RAZORS,"

And the celebrated **"ELECTRIC SHEARS."** Nickel Plated Rows.

Agents for the BENGAL RAZORS.

AMERICAN TABLE CUTLERY, BUTCHER KNIVES, &c.

91 Chambers and 73 Reade Sts., N. Y. 423 N. Fifth St., ST. LOUIS, MO.

MERIDEN CUTLERY COMPANY.

The oldest manufacturers of Table Cutlery in America. Exclusive makers of the CELLULOID HANDLE for Table Cutlery. A most beautiful and perfect substitute for Ivory. Also makers of all kinds of TABLE, BUTCHER AND HUNTING KNIVES. Illustrated catalogues with prices sent to the trade on application.

No. 49 Chambers Street, New York.

THE LAMSON & GOODNOW MFG. CO.

88 CHAMBERS ST N.Y.

AARON BURKINSHAW,

Manufacturer of **Pen and Pocket Cutlery,** Pepperell, Mass. Established 1853.

My Blades are forged by hand from the best Cast Steel, and warranted. To me was awarded the Gold Medal of the Conn. State Agricultural Society.

Office in New York with **E. P. Whipple,** 100 Chambers St.

NAUGATUCK CUTLERY CO.,

Manufacturers of FINE PEN & POCKET CUTLERY.

FULLER BROS., Sole Agents, 89 Chambers and 71 Reade Sts., N. Y.

Cutlery.

HAVE YOUR HAIR CUT.

Clark's Hair Clipper.

Extensively used and the only reliable machine for close clipping.

Simple in operation and finishes the work in short time.

McCOY & CO.,

Sole Agents,

132 Duane Street, New York.

Silver Medal, 1878—Paris.

J. R. SPENCER & SON,

Albion Steel Works, Sheffield,

MANUFACTURERS OF

FILES AND STEEL,

Table Knives, Razors, Shovels, &c., &c., of every description.

CORPORATE MARK.

SPENCER SHEFFIELD

Granted 1749.

Cutlery.

ALFRED H. HILDICK,

12 Warren St., N. Y.,

Importer of **CHAINS, ANVILS, VISES, &c.**

Agency of

HILL BROTHERS & CO., WALSALL, ENGLAND

GENERAL HARDWARE MERCHANTS,

And of

BALL'S PAT. SOLID STEEL SHEEP SHEARS.

These shears are unsurpassed for cheapness, durability and utility. They are made of one solid piece of steel from point to point, and cannot be broken in use either in the bow or at the junction of the shank and blade. Samples can be seen at above address, or sample lots furnished.

CORPORATE MARK,

Joseph Rodgers & Sons'

(LIMITED)

CELEBRATED CUTLERY,

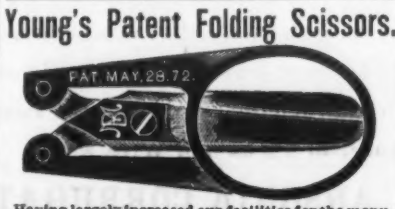
No. 82 Chambers Street, New York.

P. & W. CLATWORTHY, Agents.

The demand for **Joseph Rodgers & Sons'** productions having considerably increased, they have, in order to meet it, greatly extended their Manufacturing Premises and Steam power.

To distinguish Articles of **Joseph Rodgers & Sons'** Manufacture, please to see that they bear their Corporate Mark.

Young's Patent Folding Scissors.



Having largely increased our facilities for the manufacture of these very popular goods, we offer them to the trade at a large reduction from our former prices. The list price of the large size is now $12.00 per dozen, formerly $18.00, and the small size, $9.00, formerly $12.00. The material used in the manufacture of **Young's Patent Folding Scissors** is the very best. All are nickel-plated and furnished with a neat morocco case.

MARX BROS., Proprietors,

430 Broadway, New York.

Zuccato's Papyrograph

is a new invention for the rapid production of *fac-simile* copies of any Writing, Drawing, or other work which can be done with pen and ink.

AUTOGRAPH LETTERS, Circulars, Music, &c., are first written upon a sheet of paper, in the usual way, and from this written sheet

500 COPIES PER HOUR

may be printed upon any kind of dry paper, or other material in a common Copying Press.

This is the Most Simple, Rapid and Economical Process yet Discovered.

Thousands are already in successful use in Government Offices, Colleges, Academies, Public and Private Schools, Railway and Insurance Offices. Also by business men, lawyers, clergymen, Sunday-school superintendents, missionaries and others.

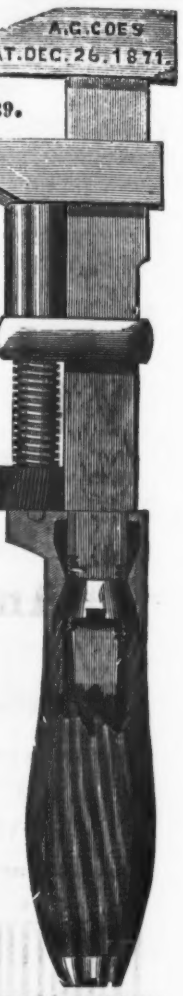
The Simmons Hardware Co., of St. Louis, says of it: "Our Papyrograph, purchased some time since, gives entire satisfaction. Would not be without it for $1000 a year.

For specimens of work, price list, &c., address, with stamp,

THE PAPYROGRAPH CO.,

43 & 45 Shetucket St., Norwich, Conn.

Local Agents Wanted.



Established in 1839.

A. G. COES & CO.

WORCESTER,

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Successors to

L. & A. G. Coes,

Manufacturers of

THE GENUINE

COES

Screw Wrenches.

PATENTED,

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The back strain when the wrench is used is borne by the bar—not by the handle.

The strongest Wrench made, and the only successful Re-enforced Bar.

None genuine unless stamped

A. G. COES & CO.,

Our Agents, GRAHAM & HAINES, 113 Chambers St., New York, carry a full line of our goods, and will be pleased to serve you at factory prices.

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Guns and Pocket Cutlery,

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WOSTENHOLM'S POCKET CUTLERY AND RAZORS.
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All sorts of Hardware and Merchandise for import and export purchased on commission.

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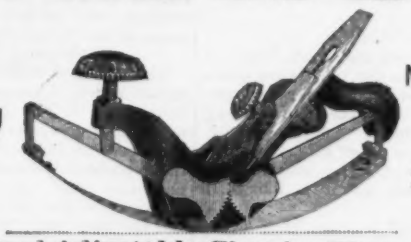

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The whole weight rests on the friction wheel, whose axis is in line with the axis of the floor wheels, thus all lateral friction is removed. We will make 14 sizes in all wheels and attachments.

They will carry the tiniest parlor chair, or tons of burden. Good furniture deserves a good Caster. Send for catalogue.

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Janney, Brooks & Eastman, St. Paul, Minn.
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Kangaroo Sheep Shears,

The best Shears made.

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Send for price list and terms.

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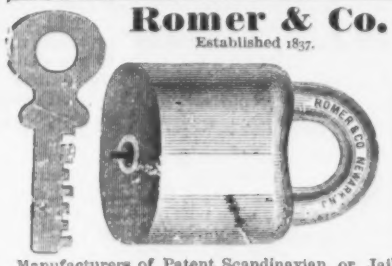
Established 1837.



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Agent for CLEMENT & MAYNARD'S Trowels, Hoes, Shovels, Spades and Scoops. Their Trowels and Hoes have entirely supplanted the English by their quality and cheapness, while all their goods compare advantageously with those of other makers, and are largely exported.

MACHINE MOULDED MILL GEARING.

AS ACCURATE AS CUT GEARING

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Saves Time and Expensive Patterns,

SHAFTING, PULLEYS AND HANGERS,

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LEFFEL TURBINE WATER WHEELS,

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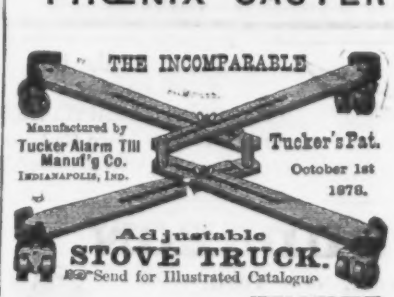

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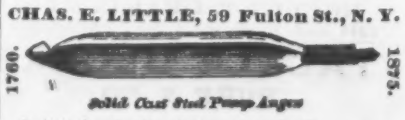
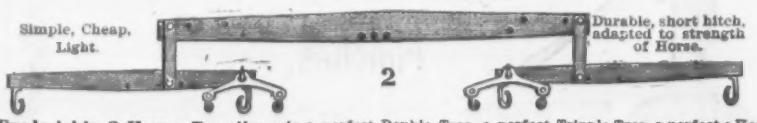


Solid Cast Steel Pump Augers

Solid Cast Steel Augers & Reamers

For Boring PUMP LOGS. All sizes in stock **Socket Shanks, Ring Handles, and Connecting Rods** for the above to order. Also **Tenoning Tools** for joining log ends. **Coopers' and Slaters' Tools,** Tool Chests. Tools for all trades a specialty.



Frederick's 3-Horse Equalizer is a perfect Double Tree, a perfect Tripple Tree, a perfect 2-Horse Stretcher, a perfect 3-Horse Stretcher, a perfect attachment for either 2 or 3 horses anywhere. Just the thing for fall plowing. Send for illustrated circular.

M. E. BUNGER & CO., Indianapolis, Ind., Manufacturers.

ovens at the Mansfield Company's works are again in operation. The Pennsylvania Lead Works are working uninterruptedly, and are shipping about the usual quantity of silver weekly.

WEST VIRGINIA.

The Top Mill, Wheeling, has closed down for repairs, which they expect to have completed by the 4th prox., when they will resume full operations. They report their furnace as doing well, and their prospects as very good for a full fall run.

The new furnace now in course of construction at the glass works of Messrs. Hobbs, Brockunier & Co., in South Wheeling, will have 13 pots instead of 10, the usual number, and will be heated by gas. The furnace will be finished in four or five weeks.

OHIO.

The Miller Chain Works, Cuyahoga Falls, are full of orders and running full time. They have now upward of 40 men. Among their recent orders was one for 8¼ tons of chain for San Francisco. They have now on their books several car-load orders for their chains.

Several abortive attempts have been made to sell the furnace of the Steubenville Coal and Iron Co. It is again advertised for sale on the 12th of August. It was appraised at the beginning of this month for the sum of $52,500.

Attempts have been made to procure options on the bonds of the Iron & Steel Co., Ironton, at the rate of 15 cents on the dollar, for the purpose of starting the mill. Thus far they have been without success. The Ironton *Register* says: "It is hardly probable that any further effort will be made by the parties to get control of the property."

It has been decided to start up the Eagle Furnace, Youngstown, as soon as the necessary repairs can be made.

The present blast at Belfont Furnace is working all native ore and nearly all raw coal.

The Falls Wire Manufacturing Company, of Cuyahoga Falls, have just completed arrangements to take from Anderson & Co., steel manufacturers, of Pittsburgh, 1000 tons of No. 5 rods. This company, successors of the Falls Wire Company, have just started under an entirely new management, Mr. Selah Reeve, of Chicago, having purchased the works. The company expect to enter largely into the manufacture of fence rods, binding wire, wire, &c.

The pay roll of the Cones Iron Company, at Girard, formerly amounted to about $6000 per month. It will now amount to a larger sum, as the company have lately put on an 8-inch train, double, and that will require an additional number of puddling furnaces.

Mr. J. W. Britton, general manager of the plate and sheet mill for the Cleveland Rolling Mill Company for the past 11 years, has recently purchased the rolling mill formerly known as the Standard Iron Company, situated on the corner of Wason street and the Lake Shore Railroad track, and has associated with him Messrs. Harvey H. Brown and Charles and Ralph Hickox. The firm is incorporated under the general law, with a capital stock of $100,000, as the Britton Iron and Steel Company. The shares are $1000 each. The works are now in full running operation, manufacturing boiler plate and sheet iron.

Messrs. Simpson & Gault, manufacturers of the "Peerless Wringers," at Cincinnati, report an unusually heavy trade this season. At present they are behind their orders, notwithstanding the fact that they have been running their works 16 hours per day during this year. Their foreign trade is very satisfactory, and constantly on the increase. They have recently made heavy shipments of wringers to London, Paris, Bremen and Melbourne. Their trade in flour mill machinery has also been quite heavy, and at present that department of the works is fully six weeks behind orders. A large increase of the capacity of their works is contemplated.

ILLINOIS.

The Belleville Nail Works have been running steadily since the 1st of January upon orders. They will shut down the first week in August for annual repairs.

The Litchfield Coal Company, of Litchfield, Ill., while recently prospecting for a deeper vein of coal, struck oil. At the time the oil began to flow the workmen had bored 200 feet below the bottom of the shaft, or 700 feet below the surface of the ground.

GEORGIA.

The Atlanta Rolling Mill, since last November, has been under the management of Grant Wilkins, of the Atlanta Bridge Works (Wilkins, Post & Co.), and is now manufacturing rails, fish plates, merchant bars and bridge iron. The mill employs 500 men, and is running full double turn, having orders on hand for Houston and Texas Central Railway, Hartwell Railroad, Macon and Brunswick Railroad, Cheraw and Chester Railroad, Mobile and Girard Railroad, Charlotte, Columbia and Augusta Railroad, and the Atlantic and West Point Railroad, besides three other roads. The orders for bar iron are in excess of the capacity of the company. Their present orders will keep them busy till November next.

INDIANA.

The steam engine and machine shops of C. L. Olds & Co., at Fort Wayne, are running 15 hours per day, employing about 120 hands. These works have been running steadily for the past year, making 10 hours per day. They have been filling some large orders recently at Denver, Col., and in Eastern cities for heavy hydraulic machinery. Besides engines and hydraulic machinery, they make specialties of tannery machinery, of which they have recently made some large shipments to fill orders. They include saw, grist and sugar mills, and woodworking machinery in their line of manufactures.

KENTUCKY.

On Monday July 13th, fire was put under the boilers of the old "Kentucky" rolling mill, at Louisville, and the mill goes into full operation on the 21st, under a new and strong organization. The officers of the new company are Mr. W. B. Caldwell, Jr., president; Mr. B. du Pont, vice president, and Mr. A. J. Moxham, superintendent. The amount of stock represented by this company is not yet announced, but about $40,000 have been paid in, and under this management it is expected that the mill will have a long and very successful run. The products of the mill will be principally bar, band and hoop iron, and tram and T-rails. The new organization will do business under the name of Louisville Iron and Steel Co.

MISSOURI.

At the meeting of the creditors of Semple, Birge & Co., St. Louis, on the 24th inst., the statement submitted showed liabilities amounting to $288,000, and assets worth $70,000. The creditors agreed to a compromise at 27½ cents on the dollar.

TENNESSEE.

The Oakdale Iron Works, Roane County, have been purchased by a company of Western iron manufacturers, mostly from St. Louis. On Saturday, the 22d inst., Mr. John G. Scott arrived at Knoxville, and the following Tuesday the board of directors held a meeting and organized, electing Mr. Scott president, and accepted the charter. Mr. Scott was at once authorized to go to Roane County, examine the titles, and if found to be all right receive and take charge of the property and make a first payment. We understand the works will be put in operation at the earliest moment practicable. Considerable repairs are necessary. The furnace is 16 feet bosh and 65 feet in hight, and was built in 1873. The ores to be used are the celebrated red fossil, and the coal is from the strata underlying the Cumberland range, both of which are in close proximity to the works and easy of access. They propose turning out about 50 tons of iron per day.

The Roane Iron Company, of Chattanooga, have engaged the services of Mr. Fred. P. Dewey, as their analytical chemist. Mr. Dewey graduated at New Haven in 1876, and immediately after, for one year, filled the position of instructor in the department of analytical chemistry at Lafayette College, Pa. In 1877 he took charge of the laboratory of the Spiegel Furnace at Port Oram, N. J., where he remained until the failure of the company. Returning then to New Haven, he assisted in the laboratory and continued his studies until his appointment to the above position.

LABOR AND WAGES.

The rules adopted by the miners of the Straitsville, Shawnee and Nelsonville valleys, Ohio, are as follows: The screen to be 12 feet long, 6 feet wide and 1¼ inches between the bars; checkweighman at every mine: for entries, $2 per yard and coal; $2.50 for turning rooms.

The situation in the vicinity of Courtney, Pa., may be summed up as follows: New Eagle is working for 2 cents per bushel of 76 pounds; Old Eagle at 2½ cents; Courtney (railroad pit), Berry, Cook & Co., working at 2¼ cents; John Huston & Co., striking for 2½ cents; Cincinnati working for 2½ cents per bushel; Coal Bluff, Patterson and Scully's (both railroad pits) have agreed to work for 2¼ cents per bushel; Gamble's on strike for 2½, as are Schooley's river pits; Leechburg, working for 2 cents; Hodgins's doing nothing; Walton's upper road idle; Jones's have been idle since spring; Walton's lower road is undergoing some repairs; O'Neil's idle.

C. Aultman & Co., Canton, Ohio, are employing over 1100 men.

All the collieries in the Lehigh coal region are now at work, excepting those at Ebervale. A strike of the breaker boys caused a suspension of two days at Jeddo, but the paying off of about one-half the boys brought back the rest, and the collieries are now all in. No further trouble is now apprehended until a general strike is found feasible.

There is a great demand for first-class machinists, and as the busy season has hardly begun yet in this trade, it is anticipated that there will be an advance in wages in the early fall. In fact, in this vicinity all classes of steady workmen are in demand.—*Pitts. Commercial.*

The Allentown rolling mill has commenced operations again after a short suspension, caused by a strike among the puddlers.

The puddlers of A. M. Byers & Co.'s mill, Pittsburgh, struck last week against the quality of the iron they have been given to boil, it being so good that it took longer to work. The trouble was settled after two days' idleness.

The railroad shops at Altoona, upper and lower, employ about 2800 men now.

There are at present employed in the Wyoming district, Pa., between 13,000 and 14,000 men and boys. In 1876-77 there were 16,000 or 17,000, but emigration since that time has reduced the number to the present figures.—*Record.*

Thirteen gathering boys employed at Beatty's tumbler factory at Steubenville, Ohio, demanded 10 per cent. advance on their wages. This the proprietors without hesitation refused, when the boys quit work and the factory closed. By this 165 men are thrown out of employment.

Gill Brothers' glass chimney factory in Steubenville, Ohio, has again commenced operations, the strikers having submitted to the terms of the proprietors.

Some of the molders at the works of Lewis, Oliver & Phillips, Pittsburgh, are on a strike for higher wages. They have only been receiving $11.90 per week, while the rate ranges from $11 to $14.50. The foundry has run only one heat during the past week.

The strike of the puddlers and pullers-out at Hussey, Howe & Co.'s steel works against the wages offered by the melters, threw about 75 men out of employment. A workman says it is a good time to strike, as the weather is too hot to work anyhow. It also seems that the firm are not greatly exercised, as orders are not pushing them just at present. The molders assert that the melters make $10 to $12 per day, and can readily afford to pay one-fifth or one-sixth of it out. The strike has been settled by the melters paying the demands.

One hundred of the best edge-tool makers of Sheffield, England, are on their way here with their families, engaged by a cutlery company of Connecticut. Other skilled workmen from Germany are to follow in September. Many Connecticut workers of iron and steel have built up a flourishing trade in Australia.

H. D. SMITH & CO.,

Plantsville, Conn.,

Manufacturers of the

BEST QUALITY CARRIAGE MAKERS' HARDWARE.

Manufacture the Largest Variety of Forged Carriage Irons of Best Material and Workmanship.

PRICES LOW FOR QUALITY OF WORK FURNISHED.

SEND FOR PRICE LIST.

SARANAC HORSE NAIL CO.

Polished or Blued Horse Nails, Hammered and Finished.

The Saranac Nails are hammered hot and the finishing and pointing are done cold. Quality is fully guaranteed. For sale by all leading iron and hardware houses.

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STERLING & CO., Agents, 7 and 9 Cliff Street, New York.

SHOVELS, SPADES & SCOOPS.

Patented.

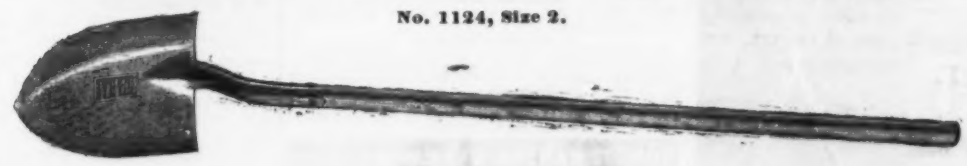
MADE FROM

BEST CAST STEEL.

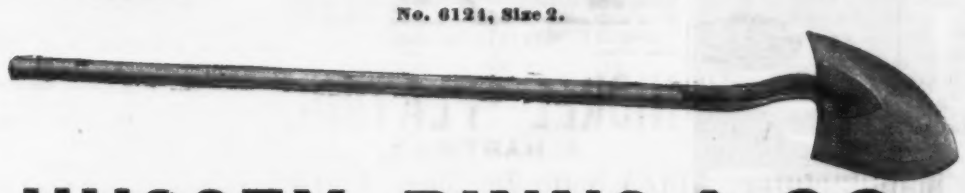
Smooth Back Coal Scoop No. 3051.

Cast Steel, No. 1023, Size 2.

No. 1124, Size 2.



No. 6124, Size 2.



Coal Shovel, Size 6, No. 1081.

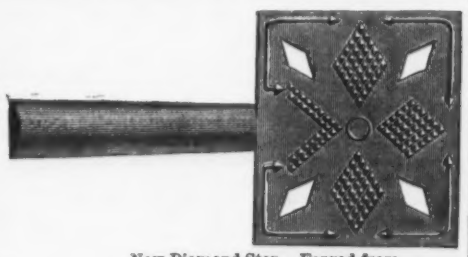
Anthracite Coal Shovel. Size 6, No. 5961.

HUSSEY, BINNS & CO.,

PITTSBURGH, PA., U. S. A.

Catalogue and prices given upon application. Sold by **Pugsley & Chapman, No. 8 Liberty St., New York.**

Derby No. 2, Fifth Wheel. The most popular wheel in the market.



New Diamond Step. Forged from Norway iron bars.

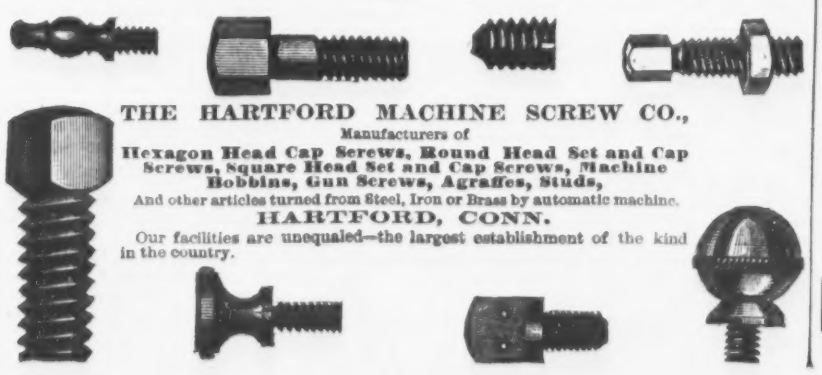
WILCOX & HOWE,

Birmingham, Conn.,

MANUFACTURERS OF

First-Class Carriage Forgings, Fifth Wheels, Steps, Body Loops, Stay Ends Offsets, Long Joint Ends, &c., &c.

Our Illustrated Catalogue furnished to the trade.



THE HARTFORD MACHINE SCREW CO.,

Manufacturers of

Hexagon Head Cap Screws, Round Head Set and Cap Screws, Square Head Set and Cap Screws, Machine Bobbins, Gun Screws, Agraffes, Studs,

And other articles turned from Steel, Iron or Brass by automatic machine.

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Our facilities are unequaled—the largest establishment of the kind in the country.

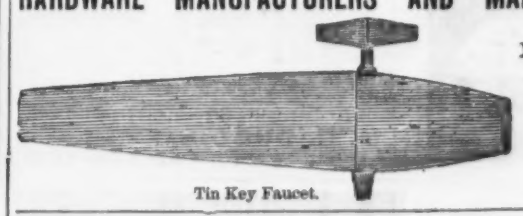
MALTBY, CURTISS & CO., No. 34 Reade St., N. Y.,

HARDWARE MANUFACTURERS AND MANUFACTURERS' AGENTS.

Sole Agents for the

NORWICH PISTOL CO.

Send for circular and price list.



Tin Key Faucet.

Capewell's Giant Nail Puller.

Torrey's Patent

COG WHEEL

Ice Cream Freezers.

P. R. DUNNE,

Manufacturer,

182 Fulton Street,

Corner Church, NEW YORK.

Torrey's Door Springs.

P. R. DUNNE,

Manufacturer,

182 Fulton St., NEW YORK.

WE MAKE ALL KINDS OF

Basting Spoons

AND

House Furnishing Goods.

ENTERPRISE MFG. CO., Geneva, Ohio.

Ask for Catalogue and Discounts.

Monson's Pat. Imp. Well and Cistern Filters.

The peculiar construction of the Filter, the excellent qualities of the Lake Shore Gravel, Prepared Charcoal and other filtering material used, secures durability and purity. They are adapted for *any soil, locality or depth*, but especially for the low countries, and particularly for the quicksands, in which they are an entire perfection.

A This cylindrical Filter, 12 inches high and 6 inches in diameter, fitted for 1¼ inches iron, or 1¼ wood pipe, will furnish a supply of clear water to a pump 3—3¼ inch bore, and 6—8 inch stroke. Price, $6.50.

15x6	inch, for	1¼	inch	Iron	Pipe	$ 7.50
18x6	"	"	1¾	"	"	8.50
24x6	"	"	2	"	"	12.50
30x18	"	"	1¼	"	"	15.50
30x18	"	"	1¾	"	"	20.50

For Bored or Deep Wells.

24x4	inch, for	1¼x1¼	inch	Iron	Pipe	$12.00 and $15.50
36x6	"	"	2¾	"	"	25.50
48x6	"	"	3	"	"	30.50

Agents wanted. Territory for sale. Send for descriptive circular and certificates. Great inducement to the trade.

M. C. MONSON,
South Evanston, Cook Co., Ill.

R. COOK & SONS,

Manufacturers of

Carriage & Wagon AXLES,

WINSTED, CONN.

ESTABLISHED 1850.

AXLES

All kinds Wagon & Carriage Axles

Manufactured by the

LAMBERTVILLE IRON WORKS,

LAMBERTVILLE, N. J. Send for prices.

WEST READING PIPE AND MACHINE WORKS,

Manufacturers of

Cast-Iron Water and Gas Pipe of all sizes.

Valves and Hydrants, Flange Pipe and Lamp Posts. Machinery for Grist, Saw and Rolling Mills. Also the celebrated CANADA WATER WHEEL, the cheapest and best in the world. Send for pamphlet.

READING PA.

The Past, Present and Future of Railways.

In a paper contributed to *Time*, Sir Edward Watkin, an eminent authority on railroad matters, reviews the past, present and future of English railways. As his remarks are in many respects applicable to this country, they deserve perusal. The contrast between the railway system of the 14th of September, 1830, when the Liverpool and Manchester line was opened, and that of today, is great. In 1830 a total of 55 miles of railway was traversed by locomotives; now there are 17,500. Then the speed of trains might be taken at a maximum of 20, now of 60 miles an hour. Then the weight of the engine was under six tons, now under 40; while per ton of weight the modern engine is much more powerful. The capital of the Liverpool and Manchester Railway, of 31 miles, was, according to prospectus, £400,000, and that of the other railway—the Stockton and Darlington—probably £200,000 more. Now there is an expended capital of about £700,000,000, and an annual gross revenue of £65,000,000—in each case approximating in amount to the debt and the annual expenditure of Great Britain. Six hundred millions of passenger tickets are issued each year, or nearly twenty times the number of England's population; 400,000 persons are, in addition, regular travelers as holders of periodical tickets. Seventy million tons of merchandise and 150,000 tons of minerals are also annually conveyed.

As regards the future, Sir Edward Watkin believes the desideratum to be greater speed of traveling and transit; not greater speed probably in every train, but a greater average speed. At present the goods and coal and stopping passenger train is in the way of the fast through express, and some of the greater companies have battled with the difficulty by doubling their lines of rail, thereby expending a large new capital, totally out of proportion to the new money-earning means obtained. It has been found that so much space represents so much traffic-carrying power; not an indefinite quantity. Unless it could be assumed that augmenting trade would not in a while be an aid, these duplications, in the absence of largely increasing receipts, must rapidly tend to reduction of dividend. In fact, it is possible to realize a state of circumstances under which the proportions of capital and net earnings might become so much disturbed that the "ordinary stock" of railway capital would be largely depreciated. Capital is an increasing quantity; working expenses are an increasing quantity also, and taxation and compensation show the same tendencies. These are conditions that stand in the way of great improvements of service; for a poor railway can do nothing but hold on. Too many railway managers, for want of a thorough experience of "out-of-doors," do not comprehend that the secret of dividend is minimum of capital outlay and the maximum of traffic at paying rates. The chief object is the maximum of utilization of railways. If a passenger can travel at 60 miles an hour, the reason why mineral trains cannot be equally expeditious is because proper vehicles are not constructed for the purpose, and the result is only a partial user of lines of road. Sir Edward Watkin would have all plant alike made fit for running at a higher speed. Much as England owes in the past to railways, in the future a great deal more will be expected from them. The railway is the only shop which cannot shut its doors. It must, almost without notice, take up and set down as many passengers as choose to present themselves at thousands of booking-offices, or as many tons of goods and minerals as the owners see fit to transmit. In the economy or "the exhaustive use" of time lies the secret of success or failure, individually and nationally.

Compound Portable Engines.

English engineers have been very much interested in experiments made recently at the Kilburn show of the Royal Agricultual Society with a compound portable engine, built and exhibited by the well-known firm of John Fowler & Co., of Leeds. In this engine, advantage has been taken of the principle of compounding, in order to use steam of great pressure with a very high degree of expansion. The steam exhausts directly from the high pressure into the steam chest of the low-pressure cylinder. The distribution is effected by ordinary slides and link-motion, so that all complication is avoided; and, by a simple arrangement, both cylinders can, if required, be filled with high pressure steam, so as to reverse with facility. In the 25-horse-power (nominal) engine exhibited at Kilburn, the small cylinder has a diameter of 8 inches, and the larger one a diameter of 14 inches, the stroke being 16 inches. They are mounted on light channel-iron frames, underneath the smoke-box of the boiler, somewhat after the fashion of inside-cylinder locomotives, the fire-box resting on the after end of the frames. The cranks are balanced, so as to ensure smoothness at high speed, and all the other parts of the engine seem carefully designed, so as to wear well under the same circumstances. The boiler is made of steel, to stand working pressures up to 150 pounds per square inch. Engine and boiler combined weigh only 8 tons, and can be worked up to 100-horse power on the brake, or to about 110-horse-power indicated. The boiler has 279 square feet of heating surface and 8 square feet of grate. It has 63 2-inch tubes, 7 feet 3 inches long. In the four experiments to which we have referred, the consumption of fuel per dynamometrical horse-power per hour was 4, 3.65, 3.17 and 2.8 pounds respectively, and in the last two experiments the consumption of fuel per indicated horse-power was 2.87 and 2.55 pounds. The water used per horse-power per hour in the same two experiments was but 24.2 and 23.2 pounds. The *Engineer* draws attention to the fact that the increase of fuel economy, exhibited in the figures given, was accompanied by, and probably chiefly due to, an increase of the boiler pressure, the first trial being made with 85 pounds, which was raised to 100 and 140 pounds respectively. It is pointed out that the compound engine, when running on low pressure, did not perform any better work than single cylinder engines of the same size, working at the same pressure. The high pressure, at which the compound engine was worked, therefore contributed largely to reduce the consumption of steam, and it is a question whether it is more economical to build compound portable engines which call for steam generators carrying 140 pounds of pressure.

MINING AND MINERAL ITEMS.

COAL.

The Pittsburgh *Telegraph's* correspondent at Houtzdale writes that the different collieries on this side of the hill do not seem to be quite so busy as those over at Houtzville. The Penn Bank ships from 10 to 12 flats daily, employing from 30 to 40 men. The Franklin Mine, of the Kittanning Coal Co., has been losing a little time lately, but the prospects seem fair for steady work now. They employ about 200 men. The Eureka Bank, of Burwind, White & Co., is nearly worked out, only about 50 men now being employed. The Sterling No. 1, operated by Robert Hare, Powell & Co., has in about 180 men, and continues to run quite steady, with fair prospects of continuing. Taking in all the collieries on the mountain, quite a large amount of coal is being shipped; in fact, excelling the same period last year, but it is said prices are so low that not much is realized.

The coal business in most of the pits at Steubenville, O., is very dull, and no apparent signs of improvement for the summer months.

The indications are that the mountains east of us will soon be well lighted up with the flames from coke ovens. Messrs. J. H. Dysart & Co. are building ovens at their mines at Lilly's Station, to coke the screenings from their coal. The Glen White Coal and Lumber Company are erecting 25 ovens at their mines near Kittanning Point; and S. C. Baker is erecting 12 ovens near his mines. The shipments over the P. R. R. show a large increase in coke products. The amount shipped during the first six months of 1879 is nearly equal to the first eight months of 1878.—*Johnstown (Pa.) Tribune.*

There are 58 coal mines in the second bituminous district of Pennsylvania, 41 drifts, two slopes and 15 shafts. Twenty of these mines are located in Mercer County, and the coal runs from 28 inches to 4 feet in thickness. But little has been done at some of these mines the past two or three years. About a half million tons were mined in the district during the last year, but with the revival of the iron making and the settlement of some railroad difficulties, it is probable the output this year will be much larger.

The annual consumption of bituminous coal in St. Louis is 1,250,000 tons, and is supplied by upward of 100 mines, the largest of which is the Abbey mine, on the Vandalia Railroad. The Carbondale Company probably comes next. It mines upward of 80,000 tons, giving employment to 75 men.

Notwithstanding the large increase of 4,638,739 tons in the production of anthracite coal this year over last, as shown by the statement prepared from official sources up to June 30, 1879, there is a decrease of 61,356 tons in the stock on hand at shipping points, as compared with the quantity on hand June 29, 1878. The stock on hand at tidewater shipping points June 30, 1879, was 432,167 tons; June 29, 1878, it was 493,523 tons.

IRON.

An immense body of iron ore has been found near Calvin Guth's mine, in South Whitehall, Pa.

The pig iron and ore shipments from the Lake Superior region this season, up to July 2, were: From Marquette, 157,820 tons, and from Escanaba, 104,507 tons.

PRECIOUS METALS.

The Landaff Gold Mining Company at Bath, N. H., are clearing $6 per ton, and there is greater mining activity in the vicinity than ever before.

Joining Wire.

An improved method of joining fencing and other wire has been contrived by Mr. J. H. Nettlefold, of Birmingham, England, by which a very secure junction is made, and the wire may be so prepared before it is supplied to commerce that the joining can be effected without the use of tools. The following is the manner in which the ends of the wire to be joined are prepared: Two or 3 inches of the end portion of the wire are first folded or doubled upon itself, this being effected round a peg or mandrel. A nearly elliptical hoop of about four times the diameter of the wire is thus formed, the extreme end of the folded portion of the wire being parallel with its straight portion, and separated therefrom by a distance equal to the diameter of the wire. The elliptical loop is bent into a plane, making a very obtuse angle with the parallel portions of the wire. In connecting together two ends of wire bent as described, they are brought together in such relative positions that the straight portions of the two wires lie parallel upon one another, each wire passing through the loop of the other wire. The parallel parts terminating the loops also lie parallel one upon another. By tightening the wires, the extreme end of each wire enters the loop of the other wire as the loops slide upon one another, and there is thus formed a junction somewhat resembling a sailor's knot, the parallel portions adjoining the loop of each wire being situated in the loop of the other wire. The junction thus formed is exceedingly strong, and the tighter the wires are stretched the more secure the junction becomes. This method of effecting a junction has the further advantage that the two portions of wire joined are in one of the same straight line. The loops at each of the ends to be joined are, by preference, made on the same side of the wire; they may, however, be made on opposite sides with nearly the same effect. In the latter case the two portions of the wire are not quite in the same line. Besides being applicable to the joining of fencing wire, the method we have described is also applicable to the joining of wires for various purposes, such, for example, as signal wires and telegraph wires.

The Iron Age

AND

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CONTENTS.

At a recent meeting in London to discuss the condition of India, Mr. John Bright said that if it were really necessary, as now, to expend over half the Indian revenue on the army, it seemed to him it would be almost better to confess failure, and say that the government of a great empire in Asia, by rulers sent from England, is impossible and ought never to have existed. We are told that this speech has excited "much hostile comment," which is probably due to the fact that it takes a common-sense, business-like view of the relations of England and India, and deals with truths which are unpleasantly and uncomfortably obvious. The history of British rule in India is calculated to convince any impartial reader that it ought never to have existed, and when this is considered in connection with the present impoverished and generally deplorable condition of the country, the conclusion of failure is irresistible. To England India is much like a sucked orange, but with the important difference that it cannot be thrown aside. It is already an embarrassment and a burden, entailing serious responsibilities and involving a constant danger to the peace of the British empire, and will ultimately lead Great Britain into a great and costly war, about which no Englishman of the present time would like to speculate.

The Outlook in the Western Iron Trade.

The advance in iron in the West since the beginning of the year, and especially during the past six or eight weeks, seems to be fully justified by the condition of the market. The fact that it has come about in a natural way, without any concerted action on the part of the manufacturers, and without even a meeting, and that buyers are paying the advance, is not only the best evidence that it is justified, but that there is a healthy condition of trade in other branches. Many mill men and consumers were inclined, for a while, to regard the reported advance as another of the many false indications of revival that have been so frequent during the past five years. But somehow the advance has come, and as they look back six weeks and compare prices at that time with those ruling to-day, the result is more evident than are the steps which have led to it; but no one doubts now that there has been a healthy, legitimate advance, and one that will be maintained.

In searching for the reason of this advance, the immediate cause is certainly the unusual activity in railroad construction—in laying new tracks, in renewing old, in general repairs, and in the manufacture of cars, locomotives and general railway equipments.

The first effect of this was seen in the West early in the year, in the pig iron and ore trade. The price asked for ores suitable for Bessemer purposes determines largely the selling price of all other Lake Superior ores. It was evident early in the year that the demand for these ores for Bessemer purposes, arising from the large demand for steel rails, would be very great, and the amount available for other purposes much reduced. It was evident also that the miners of these ores would advance their prices over those of 1878. About this time coke, which had been as low as 85 cents to 95 cents per ton, free on board at the ovens, began to advance. It became clear to the manufacturers of pig iron that the cost of raw materials for 1879 would be considerably in excess of that for 1878, and they began to agitate an advance in iron. They have at different times added 25 cents to 50 cents per ton, until there has been an advance of fully $2 established in irons that have any character or reputation. The demand for old rails for rerolling has aided in establishing and keeping this price firm, by removing from the market a disturbing element and putting old rails at such a price as to make it cheaper, as well as more satisfactory, to use pig iron. Charcoal irons, with the exception of those for car-wheel uses, do not seem to have shared fully in this advance. Coke and anthracite irons have been found to be adapted to so many uses for which at one time only charcoal irons were supposed to be fitted, that the demand for these irons is not so great, and mill men are not willing to pay any more for them than for coke and anthracite irons. It is different with car-wheel irons. These are in better demand, though stocks have been largely reduced, and, in sympathy with all articles for railroad uses, there has been a sharp advance in price.

The condition of the rail market is so well known that it is unnecessary to more than refer to it. The marked increase in price, the almost marvelous recuperation of the iron rail business, a branch of manufacture that at one time seemed past all hope of revival, and the great increase in demand, have furnished the subject of so many articles that we need not refer to the causes that have led thereto. Steel rails have advanced some $3, and iron rails $5 to $7.

The advance in the manufactured iron trade in the West has been longer coming, but that it has come no one can presume to doubt. There were a number of causes which delayed the advance. The prospect of labor troubles on the 1st of June had a strong influence in postponing it. Many of the shrewdest manufacturers believed that an advance would work injury to the trade by leading idle mills to resume, and there is no doubt these mills will start. If the demand continues as large as at present, the market will demand an increased production. As it is, there is hardly a mill running, especially in the neighborhood of Pittsburgh, that is not full of orders. Many of the mills are running double turn, and some that are only running single will go on double as soon as the weather is cooler. Notwithstanding this activity, consumers complain that they cannot get their orders filled, even those that have been booked for some time. One of the oldest Pittsburgh houses has not had a man out soliciting orders for months, and yet their capacity is taxed to fill orders received.

Some indication of the extent of the increase in trade in the West, is furnished in the following table of iron receipts at Pittsburgh, from January 1 to July 1. In this table are given the receipts of pig iron, ore, blooms and billets, scrap, cinder bar and merchant bar during the first six months of the current year. These figures, as compared with those for the first half of 1878, indicate an increase in the receipts of pig iron of 20,729 tons, and of blooms and billets of 3734 tons, and an increase in all kinds of 60,026 tons. There was a decrease in cinder bar, merchant bar and scrap iron:

	Pig Iron. Tons.	Ore. Tons.	B & B Tons	Scr'p Tons.	M bar. Tons.	Cin. Tons.
Penn. RR..	35,898	905	8,816	8,041	....	3,530
P., F. W. & C. RR....	25,560	36,276	1,260	8,092	360	250
A. V. RR...	1,740	480	426	2,628	....	...
C. & P. RR..	2,352	65,732	4,068	3,217	....	2,160
P., C. & St. L.	332	....	48	900	....	....
P., Va. & C.	290	3,938	48	72	....	....
West Penn..	18,743	....	....	....	....	....
B. & O. RR..	5,572	....	2,580	981	180	....
P. & L. E. RR..... ..	8,460	44,025	....	....	....	....
Total	118,947	151,356	17,246	23,931	540	5,940
By river.....	7,153	15,432	311	6,352	....	....
Total.....	126,100	166,784	17,557	30,283	540	5,940
Total 1878.	96,371	126,692	13,823	31,928	1,658	16,656
Inc., 1879....	29,729	40,072	3,734	....	....	....

Pittsburgh consumes one-fifth of all the pig iron made in the country. According to the table the receipts of pig iron from outside of the city for the first six months of 1879 were 126,100 tons, against 96,371 tons in 1878, an increase of about 31 per cent. It should be noted that this table includes but little of the iron made by the Pittsburgh furnaces. It probably includes that made by the Isabella, but none made by the Lucy, Shoenberger, Clinton, Eliza or Soho.

While the facts above given relate to the Western iron trade alone, they are full of interest for the whole trade. There have been too many evidences during the last year that the price and condition of the market at Pittsburgh governs that of other sections, to enable one to judge of the future without considering the condition of the trade West. Those sections that have been thwarted in honest endeavors to advance iron by the action of Western manufacturers, can rejoice in view of the fact that at last there is such a condition of the market in that section as will enable them to carry out their good intentions, while the West can take courage from the surprise they have had at the ease with which they have maintained their advance.

Canadian Complaints of Undervaluations and Smuggling.

The hardware trade of the Dominion—or a part of it, at least—is profoundly disturbed by the alleged systematic undervaluation of imports entered at the ports of the lower provinces and Ontario, and have petitioned the government to appoint an expert as chief appraiser, with a view to securing a greater equality in valuation than now exists. It is claimed that the benefits which it was hoped would result to the hardware manufacturers of the Dominion by the imposition of protective duties, have been neutralized by large importations at valuations so low that it amounts to smuggling. Having experienced similar agitations in this country, we are prepared to sympathize with our neighbors. We would remind them that it always was and always will be a matter of serious difficulty to secure equality of valuation at different ports of entry—impossible, indeed, until all points of difference in the practice of various collectors of customs are covered by decisions of the Treasury Department or the courts. It is also well to remember that no rule of practice can be framed which will satisfy everybody. The importer believes that it is his privilege to secure any advantage he can in the payment of duties, and that in the valuation of the goods he imports, his enterprise, his facilities for buying, or his fortunate purchases, if conducing to cheapness, should redound as much to his advantage in his dealings with the Custom House as with his customers. On the other hand, the manufacturer, jealous of the advantages of protection, insists that the highest market price should always be the basis of appraisement; that the importer is constantly engaged in efforts to defraud the government, and that he is unjustly favored unless all the decisions and interpretations of the Treasury are adverse to the importer. We know nothing as to the justice of the complaints of the Canadian hardware trade, but such complaints seem to be the inevitable outgrowth of radical tariff changes; and the fact that great dissatisfaction exists with the appraisements of hardware at the Custom Houses of the Dominion, does not necessarily prove that the government is being wronged in the matter of duties. Irregularities in valuations cannot be avoided in organizing the machinery of a new tariff system. As to the complaints that great quantities of foreign goods are smuggled into the Dominion without paying any duty at all, we have no doubt these are well founded. There is great inducement to smugglers, and every opportunity for carrying on their business on a large scale. There are a great many clever people in this country who would not object to sharing the profits of a contraband trade; and if the Canadians suffer from American enterprise in this direction, it may afford them some consolation to remember that they are being repaid in their own coin for their long and, generally successful, efforts to profit by the inability of the United States to protect its Canadian frontier, until the decline in prices in this country after the panic removed the temptation to circumvent our revenue laws. A turn about is fair play, and nations will always regard a foreign tariff as they do a foreign blockade—something to be respected only so long as it is enforced with such vigilance as to make the risks greater than the chances of profit.

English Iron Trade Statistics for 1878.

From the annual report of the secretary of the British Iron Trade Association, Mr. J. S. Jeans, we gather some interesting statistical data. In general, the pig iron trade has experienced an unparalleled depression in nearly every district of England and Scotland; and, notwithstanding a large decrease of production, there has been a notable accumulation of stock in stores and in first hands, causing a steady decline of prices. In the great Cleveland district, the production of which has increased without interruption since 1869, when 1,233,418 tons were made, the make fell off by 115,000 tons, the exact figures being, for 1877, 2,138,378 tons, and for 1878, 2,023,177 tons. Out of 165 furnaces, 92 were in blast in 1878, while 106 out of 162 were working in 1877. Concurrently with this decline in the make, stocks increased to the extent of 64,000 tons, which left on hand in warrant stores, 89,198 tons, and in makers' stores, 248,139 tons—a total of 337,337 tons, against 273,946 tons for the close of 1877. The price of pig iron, which in 1873 averaged £5. 9/2 ($26.46), fell to £1. 18/2 ($9.28) for 1878.

The state of affairs was as bad or worse in Scotland, where 92 furnaces turned out 902,000 tons, against 84 making 982,000 tons in 1877, while the stock on hand at the close of the year had reached 619,000 tons, or nine months' output, an increase of 114,000 tons as compared with the preceding year. For this surplus a market was obtainable, on the 31st of December, 1878, only at the exceptionally low figure of £2. 3/3 ($10.46).

A striking illustration of the rapidity with which a flourishing district may fall into decay, is exhibited by the statistics of South Staffordshire, whose iron trade is unable to compete with that of the Cleveland, Lincolnshire, Northamptonshire and West Coast districts. The total number of furnaces in blast has been reduced to 24, while 123 furnaces are cold. These 24 furnaces represent an output of not more than 250,000 tons. In North Staffordshire 21 furnaces turned out 200,000 tons, or 50,000 tons less than the preceding year, while South Wales, with 54 furnaces, fell off from 710,000 tons in 1877 to a little over 660,000 tons in 1878. In the Lancashire and Cumberland districts, where hematite pig for Bessemer manufacture is chiefly produced, the make of 66 out of 100 furnaces came up to the output of the preceding year, but the price obtained for the pig declined from 72/6 ($17.54) to 55/ ($13.31). Similar complaints as to the unremunerative character of the trade come from Derbyshire and the West Riding of Yorkshire, where the production has remained stationary, while Northamptonshire and Lincolnshire, both of which have shown a rapid advance of productien since 1870, have ceased to progress. This universal distress we know has not been mended within the first six months. On the contrary, prices have gone on declining, with a restricted demand, and there is as yet little hope of a recovery, especially as the general depression of the agricultural, textile and other important industries continues unrelieved, and the export to foreign markets, though in some cases temporarily increased, is met by a sharp foreign competition.

Two potent causes have co-operated in burdening the manufactured iron trade even more severely than the pig-iron interest. It has not alone suffered in sympathy with English industry and commerce in general, but has been forced to face a vigorous rival in structural steel. The superiority of the latter metal has gained for it a preference in many uses for which wrought iron was formerly exclusively employed. Naturally, this competition has been most keenly felt in those districts whose products consisted mainly of a high grade of special irons, and thus we find Yorkshire and Derbyshire suffering most severely, while many works in Staffordshire have been either closed altogether or only partially operated, and the bulk of trade considerably contracted. In the North of England—the most important center of the malleable iron trade—no shrinkage of the output has been noted. On the contrary, a slight increase of 5000 tons carried the total of the year 1878 to 410,000 tons. This is owing to a remarkably rapid change in the character of the manufacture. Within five years the manufacture of iron rails, which in 1874 represented one-half of the manufactured iron trade of Cleveland, has sunk into insignificance. The manufacture of ship plates rose very considerably, while the production of angles increased and bars declined. A glance at the following figures, in tons, will illustrate this extraordinary change well:

	Ship plates.	Rails.	Angles.	Bars.
1874.....	178,272	265,000	49,500	....
1875.....	173,416	246,000	41,246	....
1876.....	172,374	107,800	52,664	88,000
1877.....	214,000	36,700	67,000	72,000
1878.....	231,000	21,000	99,000	68,000

The Cleveland iron trade, therefore, has become especially dependent upon shipbuilders as consumers, and it is a very fortunate circumstance for the district that the unusual activity in ship-building gave it an opportunity for relief. How long this growing industry will find it possible to counterbalance the losses in other directions and maintain a firm stand against the inroads of steel, is a matter which is difficult to foretell from present indications. There seems little doubt that steel plates will compete for a large share of the trade at a very early date, while the question whether steel is fit for beams, angles and other shapes for ships, is still to be settled. The issue of this struggle over the question of steel or iron for ships will, of course, largely affect the Scottish malleable trade also. The latter experienced a small shrinkage during the year under review, having fallen off from 218,000 tons in 1877 to 195,000 tons in 1878. Here also increased activity in the shipbuilding trade prevented a more serious decline, and it is believed that the expansion of the trade referred to brought about the reduction of old stocks, and caused also the importation of malleable iron from other districts. Scotland showed both a decreased production and an increased local consumption.

In Wales and Staffordshire, where no such relief was offered for filling out the gap left by the departed iron rail trade, matters looked very gloomy; Wales, once a flourishing iron-producing district, turning out only 80,000 tons of malleable iron, outside of its tin-plate trade.

Such have been briefly the results of a year's work of the British iron trade. Disaster has overtaken many connected with it, and many more have been carried dangerously near insolvency. An enormous amount of capital has been lying idle, much of which is permanently sunk and irretrievably lost. Large bodies of workingmen have been forced to abondon the iron trades, while others have been able to gain only a precarious living from an industry which but a few years since afforded them and their families ample means of subsistence. The outlook gives but little promise of future improvement.

Our Favorable Trade Balance.

The chief of the Bureau of Statistics at Washington has furnished tables showing the totals of our foreign trade for the fiscal year ended with June, 1879, compared with those for the previous year. The values of domestic exports were as follows: In 1878, $680,709,268, and in 1879, $698,334,951. The values of the exports of foreign merchandise during the same years were $14,156,498 and $12,093,792, respectively. The values of the imports of merchandise during the years ended June 30, 1878 and 1879, were as follows: $437,051,532 in 1878, and $445,792,141 in 1879. The total value of the exports of merchandise from the United States during the fiscal year just ended exceeded the value of the imports of merchandise by the sum of $264,636,602, as against an excess of exports over imports of merchandise during the preceding year amounting to $257,814,234. The above figures relate to merchandise alone. The imports and exports of coin and bullion during the last fiscal year were as follows: Exports, $24,996,641; imports, $20,293,000—an excess of exports of $4,703,641. During the preceding fiscal year the exports of coin and bullion exceeded the imports of coin and bullion by the sum of $3,918,811. The statistics of our merchandise exchanges with other nations for a series of years, show the following differences:

Year ending Ju. 30.	Total Exports.	Total Imports.	Excess of Exports.	Excess of Imports.
1865.	$166,029,303	$238,745,550	.....	$72,716,277
1870.	292,771,768	435,958,408	.....	143,186,640
1875.	513,442,711	533,005,436	.....	19,562,725
1878.	694,865,766	437,051,532	$257,814,234	.....
1879.	710,428,743	445,792,141	264,636,602	.....

Since 1865, inclusive, there has been an excess of exports over imports of merchandise amounting to $126,000,000. That is the balance of trade for the whole period of fifteen years. Of coin there has been an excess of exports over imports every year since 1865, the total balance in the movement of coin being $696,000,000. A very large proportion of this sum was not, however, specie proper. It was silver bullion, and ought to have been classed as merchandise. The specie export now is almost all silver bullion.

Emigration and Labor.

From reports received from England since the editorial in a recent issue on "Emigration and Labor" was written, there is evidence that faith in emigration, as a relief for the English working classes, pervades all departments of labor. We have talked and written without stint about the severity of our panic, but have not dreamed of such a state of affairs as now exists in England. We have had no such paralysis of manufacturing—no such armies of idle workmen as are standing in the streets of the English manufacturing towns with nothing to do, for there is no such mobility of labor there as with us. The workingman cannot readily move from one employment to another, nor from one section to another.

The depression in the iron trade has been known to be very severe, but, as business was improving with us, it was hoped that the worst was over in England also. As we write, however, the cable brings information which, if true, shows that there are worse days ahead. The dispatch referred to says: "Several of the most important iron-masters in the kingdom, it is believed, have for a long time kept their works going simply because it would be utter ruin for them to stop, and it was better for them to keep on at a comparatively small loss, than to have everything swallowed up by disclosures which would follow stoppage. Every one has known for a long time that trade was rotten, and the only hope was that something might occur to bring about an increased demand and

"higher prices. No such thing has hap-"pened, and affairs have daily grown more "gloomy. To-day an unusually large amount "of bills and acceptances of firms in the "iron trade fall due, and the city has been "agitated by rumors that these would, in "many instances, be dishonored. Similar "rumors are afloat concerning a very im-"portant Manchester house."

In the English cotton manufacturing districts production has been largely cut down, there being a diminution in the past five years of fully one-half. It is said there are 500 vacant houses at Rochedale. The Manchester *Guardian* states that "the condition "of trade in the Rosendale District is even "worse. But six mills out of a hundred are "working full time. Thirty-five are en-"tirely stopped and closed, and the rest "average only three and a quarter days a "week." Couple these facts with the reported prospect of short crops, as the result of the unfavorable weather early in the season, and it is not wonderful that there should be a gloomy feeling among the British working classes well-nigh akin to despair.

In this trouble the only hope seems to be to reduce the population by emigration. We have spoken of the action of the Amalgamated Iron Workers and kindred societies. Within the past week we have seen three letters from England, all suggesting that our employers of labor extend aid to bring over these idle workmen to this country. One was from a prominent trades union leader, who offered to come himself and bring as many good rolling mill workmen of all classes as were needed with him. It is questionable if we need these men as skilled laborers, but of other work there is enough for them to do.

The Darien Canal Project.

If M. de Lesseps had not vindicated his claim to recognition as a great engineer, the newspaper accounts of his intentions with regard to what is called, in newspaper English, the "Canalization" of the Isthmus of Darien, would not impress the public with a high idea of his intelligence or capacity. A writer for the *Parisien*, who has interviewed M. de Lesseps, makes him reveal his proposed plan of operations in the following succinct and comprehensive style: "We "shall first dig wells or holes of a depth of "from 40 to 50 feet, and from these 'puits,' "chambers or corridors will connect the "whole top of the 'Culebra;' then the "trains of powder being prepared the whole "top will be blown up at once. To carry "away the *débris* steam cars or tramways "will be run on a '*chaine sans fin*', and as "fast as one wagon departs another comes "up ready to be filled. Thus we lose no "time. I shall have my doctors first prove "the salubrity of the route, so that all pre-"cautions as to health may be made, but we "really only fear the climate in the vicinity "of the Atlantic Coast. I expect much of "the work to be done by negroes, as they "are very hardy and contented laborers "when in a body or with their families. "They can have their little cabins and "*ménage* settled and quiet for years to "come. I calculate that with everthing "furnished they will be well paid at two "francs a day. The Chinaman does not "please me so much for this style of work. "He is more dexterous with his fingers, per-"haps, but less steady and less able to be "driven. The canal will be the greatest "work I have ever attempted, and I am "doubly confident, from the fact that money "will not be lacking. It will be 47 miles "long and 30 feet deep, with the same "width of channel as the Suez, with eight "basins for anchoring passing steamers, "built alternately on either side of the canal. "Thus fifty vessels in a day, if necessary, "could pass and draw water as in open sea." If M. de Lesseps will read a little book published in this country some years since, in which the history of the construction of the Panama Railroad is given, he will be able to form a pretty good idea of the salubrity of the climate, without sending his physician out. He will also find therein good reason to change his estimate of the probable cost of labor.

We should be inclined to dismiss all such stories as creations of the fertile brains of ingenious reporters, if M. de Lesseps' wild estimates of the business and earnings of the canal had not shown that his enthusiasm has run away with his judgment. In his prospectus of the Darien Canal Company, the capital is fixed at 400,000,000 francs. Only 125 francs per share will be called for in the first instance. Interest at the rate of 5 per cent. will be paid on the actual money received during the course of construction. M. de Lesseps estimates an income of 90,000,000 francs from the canal, and reckons that the shareholders will receive 11½ per cent. per annum. No wonder the London *Times* and our own leading journals ridicule the extraordinary calculations which have led to the conclusion that the proposed work will yield a net profit of about 85 per cent. on gross earnings of 90,000,000 francs, with an investment of 400,000,000 francs. Such fantastic estimates will not strengthen the confidence of American business men in the soundness of M. de Lesseps' judgment or the value of his opinions about the financial requirements and prospects of the proposed canal. It is stated that he will arrive in this country in November; that the work of surveying, &c., will begin in October, and that by January 1st he hopes to break ground. Whether he will secure the approval and assistance of the people of this country, which he hopes for, will depend very much upon what he has to offer us.

At a meeting of cabinet-makers in this city a few days ago, the following propositions were read and adopted:

First.—That the actual creative power of production is superior to the destructive power of consumption.

Second.—That the reduction of the hours of labor to eight hours per day would not decrease the present productive capacity of the past.

Third.—That the amount of production does not depend upon the number of hours of labor per day.

Fourth.—That the cost of production does not depend upon the rate of wages.

Fifth.—That under the present industrial *régime* the reward of labor is in an inverse to its utility.

This would be very funny indeed if it were not pathetic. The poor fellows whose uneducated minds and untrained reasoning powers are incapable of grasping the elementary truth of all departments of economic science, that the end and aim of human effort is abundance, and that abundance is not attained until all needs are supplied and all reasonable desires satisfied, are a sad but instructive spectacle when they meet to debate, in all seriousness, the arrant nonsense which their quick-witted, but superficial, leaders propound as great truths.

The severe storm of last week in Western Pennsylvania, while it worked destruction in many sections, proved a blessing to the coal operators of the Monongahela Valley as great as it was unexpected. Over 7,500,000 bushels of coal went out of the river to the lower Ohio ports, and a larger amount of the 16,000,000 bushels afloat at Pittsburgh would have gone had there been towboats to move it. The manufactories along the lower Ohio will now be relieved from the coal famine that has caused so large a number to cease operations. The shipments in bushels were as follows:

For Cincinnati	3,006,000
For Louisville	3,994,000
For St. Louis	300,000
For Ironton	168,000
For Madison	288,000
Grand total	7,756,000

This immense amount was made up into tows and started down the river in about 18 hours. As it is estimated that an acre of coal land will yield 100,000 bushels, it will be seen that this amount represented the production of 77½ acres.

The strike of the molders and pullers-out at Hussey, Howe & Co.'s, Pittsburgh, suggests several conundrums. These men are not employed by the firm directly, but by the melters, so that the strike is not against the firm, but against their fellow workmen who are a grade higher in the scale. Now, the first question is this: If a capitalist or a manufacturer who does not at once accede to the demands of his workmen for an advance, or who proposes to reduce wages, becomes thereby a tyrant, &c., what does a workman, a member of the Amalgamated Association of the Iron, Steel and Tin Workers, become when he does the same to his assistant? Suppose these melters should refuse the demands of their molders and pullers-out, and should put other workmen in their place—would these men so employed be "black-sheep," "scabs," &c., or would the fact that workmen employed them make any difference? Since writing the above, we learn that the Amalgamated Association have settled the matter, and ordered the melters to pay the demand, so these questions will lie on the table for the present.

The Committee of the House of Representatives on the causes of the depression of labor and industries, formerly known as Hewitt's Labor Committee, have resumed their investigations, beginning at Chicago. This committee was originally created by the XLV Congress, Hon. A. S. Hewitt being chairman. The testimony taken by this committee last year was printed, but no report written. The committee was reorganized by the XLVI Congress, with Col. H. B. Wright as chairman, and to its duties were added the investigation of the Chinese question. Whatever cause there may have been for the existence of this committee a year or eighteen months ago, its day of usefulness would seem to have passed. There does not appear to be at present much depression in labor or industries, or if there be in some exceptional cases, it will not continue long. The accumulation of evidence that the depression is past is overwhelming. All that is needed now is that business be let alone by legislation. The natural vitality of the body commercial will speedily correct anything that is wrong, and quackery and patent medicines are not needed.

The postal savings bank system, which has been on trial in Canada during the past eleven years, is said to have worked satisfactorily. In 1868, the initial year, the deposits were $130,688.89, representing actually but three months' business. On the 30th of June, ult., there was due depositors the sum of $2,925,290.80. The management of this loan costs but a fraction over half of one per cent., and interest is allowed at the rate of 4 per cent. Such a system gives small capitalists the advantage of lending their money to the government, which is supposed to be safe from any of the vicissitudes that affect the security of savings banks; but why the government should accommodate the people by borrowing the surplus capital of the country on call at 4 per cent. interest, does not so readily appear.

Notwithstanding the efforts of the protectionists to secure a termination of the existing treaties of commerce, the French Chamber of Deputies has passed the government bill authorizing their continuance for six months after the general tariff is voted. This delay gives ample time for the conclusion of transactions based upon the international commercial relations which have existed under these treaties. We are of the opinion that changes in tariff laws, whether increasing or decreasing duties, should never go into effect until after time has been given for trade to adjust itself to the new conditions.

One of the most significant indications of the revival of business is found in the disposition of buyers to place orders for larger amounts than they have been accustomed to do, and to lay in more stock than will be necessary for immediate wants. This comes, of course, from a feeling that any change in the market must be upward, and is a most satisfactory indication that there is a substantial and permanent improvement.

We learn that a large German establishment has been offered Thomas basic brick, by a Middlesborough house, at 80/ ($19.36) a thousand, f. o. b. at Hull or Middlesborough. This price, which is considerably higher than that estimated by Mr. Thomas, who places it at 40/ to 60/, may at least serve as a basis for present calculations of cost.

METALLURGICAL NOTES.

BLAST FURNACE HEARTHS AT CEDAR POINT FURNACE.

Mr. T. F. Witherbee, of Port Henry, N. Y., long and favorably known for his excellent contributions to metallurgical literature on the subject of blast-furnace construction and management, read at the last meeting of the American Institute of Mining Engineers, a paper embodying his experience in working with hearths of varying dimensions. The first crucible was 5 feet 6 inches in diameter, with tuyeres 5 feet 4 inches high, and the cinder tap 4 feet from the bottom. Great trouble was found in holding iron a proper length of time, four hours being the outside limit when working well, and two hours or less if working badly. "Breakouts" through the iron notches were not uncommon. They alternated with hard notches. The coil tuyeres originally were flush with the brickwork, 5 feet 6 inches from nose to nose, but they were finally drawn back, until 6 feet 4 inches apart, and still later Nos. 3 and 6 were further withdrawn, until 7 feet 10 inches apart. It effectually broke up a tendency to hang, which had given some trouble during the blast, in one case lasting 24½ hours, and another 44, followed by slips of 13 feet and 19 feet respectively. Coil tuyeres were used the first three months, and bronze tuyeres ever since, and also the Lürmann front. The brickwork was only saved by a free use of water, introduced through 12 holes drilled above the tuyeres to within 1 foot of the nose. Breakouts around the Lürmann front were quite frequent, causing terrific explosions, blowing off the outer course of blocks (bricks), sometimes one-fourth or one-third of the circumference of the hearth.

For the second blast three wells and a water-jacket were adopted, the bosh increased to 17 feet, and the angle from 71 to 77 degrees. Owing to the castings coming too large, the hearth was put in 8 feet 8 inches in diameter instead of 8 feet, as intended. The cinder-tap was 3 feet 7½ inches high and the tuyeres 6 feet 1½ inches. This large hearth held no more iron than the first one, and, safely, not as much. For a time six-hour casts were made by plugging up the cinder-taps and taking the chances, hoping that by holding it in the hearth might enlarge. As a result, a break-out through the Lürmann front occurred. The furnace worked with a core, causing a rapid cutting away of the brickwork, which was only limited by the water-jacket and boiler-iron casing of the boshes. Above the tuyers the coal was found in direct contact with the water-jacket, and also with the bosh casing over No. 6 tuyere. During the blast the jacket gave no indication of being bare of bricks, though the bosh casing did, and was only saved by water. Not a vestige of the bosh remained. Upon removing the bell, a hole 8 feet in diameter extended down 55 feet, within 9 feet of the tuyeres. Had this been known, and the hole filled up with coal, the furnace might probably have been saved. By the use of kerosene oil anything could be melted in front of the tuyeres, but the mass could not begot to run out, owing to its being largely composed of lime.

Probably the reason why this large hearth held so little iron was mainly owing to the great weight of materials in the stack—over 800 gross tons — 187 pounds per cubic foot—the large diameter of hearth and the steepness of the bosh allowing the stock to sit down on the bottom and pack into the crucible.

The dimensions of the hearth succeeding this large one were made similar to those of the first hearth. The distance between the tuyeres was chosen at 6 feet 4 inches. The tuyeres were placed 7 feet from the bottom, and cinder tap 5 feet 8 inches. The angle of bosh was changed from 77 to 72½ degrees, not intentionally, but in order to join it on where the cutting left the lining in best shape to do. The iron notch was made continuous 4½ feet high, as in No. 2, and in blowing-in in each case the crucible was rammed full of sawdust up to cinder tap. The first tappings of cinder were drawn through the iron notch, which was tapped about half way up. No attempt was made at first to get the bottom of the notch, but it was opened lower and lower each cast, and iron always found. Possibly it might have been found at the bottom much sooner than looked for, but it was thought best to adopt the sure plan of working it down in about two days. The working of this hearth has been very satisfactory; the iron notch has never been hard, and only a few break-outs have occurred. There has been no tendency to fill up in the bottom, but, on the contrary, it has cut down 18 inches during the year it has been in use. Iron has been held ten hours, the regular time being six hours. In only two instances has iron been known to pass through the cinder tap, and then only in trifling amounts when working too hot, while in Nos. 1 and 2 it caused the loss of many cinder notches. During this blast but two have been used up, while two more were in use 317 days, through which had flowed over 20,000 tons of cinder. The experience at Cedar Point proves, therefore, that in order to use the Lürmann front with best results, the cinder block must be set high enough, so that iron will neither flow out nor be blown out. Sixteen inches is about the proper distance between the cinder block and center of blast tuyeres, which in this case makes 7 feet from the bottom of the hearth.

A point in favor of high tuyeres, is that if set high enough, so that there is no probability of the iron rising up to them, the danger of losing them is reduced at least 50 per cent., since cinder will not cut them, and there is only left the drilling effect of the iron drip on top to contend with. There need be no fear of the crucible filling up; on the contrary, the tendency to cut down will be increased somewhat in proportion to the increased ferrostatic pressure. As the iron notch, cinder tap and blast tuyeres have nothing in common, there seems to be no good reason for putting them so nearly on the same level as to interfere with one another.

THE DENSITY OF SLAGS AND THEIR PERCENTAGE OF SILICA.

With the object of attracting attention to a simple method of ascertaining approximately the amount of silica in slags from lead, copper or silver smelting, Mr. Thomas MacFarlane, of Wyandotte, Michigan, has collected some data on the relation of the density of such slags and their density. The general rule is that the most silicious slags are the lightest, while the most basic have the highest density. Of course, the variations of the relative amounts of the different bases entering into the slag, the oxide of iron, lime and alumina make the figures obtained in one locality of little value to other works. In each establishment where the proportions of the different bases remain approximately equal, a series of determinations tabulated may prove of value in giving a tolerably close approximation to the amount of silica in the slag. Any fluctuations in its acidity can be thus more accurately corrected than by judging alone from its fluidity, fracture &c., the usual guides.

THE HOLLWAY PROCESS FOR LEAD ORES.

In the *Journal of the Society of Arts*, Mr. John Hollway has published a short *résumé* of his process of smelting metallic sulphides by blowing air through them when in a molten state, and of the applications to which it may be put. Among others he makes the following claim: "The process may be employed for the reduction of even the more volatile metals. It is well known that sulphide of lead reacts upon oxide of lead with the production of metallic lead and sulphurous acid. If, therefore, a limited amount of air is blown into molten sulphide of lead, the oxide thus formed in the lower part of the furnace will, in passing upward, come in contact with the hot sulphide of lead, and metallic lead will result with the evolution of sulphurous acid. The furnace having a quiescent hearth below the tuyeres, the metallic lead will collect there, and can be from time to time withdrawn. A limited amount of air must be employed, because if it is driven in too quickly the sulphide of lead would rapidly distil off. In thus treating argentiferous lead ores, the silver (and gold if present) would be found with the first metallic lead reduced. When thus treating galena the furnace should have a basic lining." There can be no doubt that such a reaction as that upon which Mr. Hollway bases his new process for lead sulphides does exist, as it is the foundation of the mode followed in many of the reverberatory and hearth processes. But even in these only a portion of the lead is obtained with its aid, and it is the one element in their favor that a low temperature, reducing the loss by volatilization, is used. Mr. Hollway's process implies a very high temperature, not inferior to, and probably greater, than that of the blast furnace. The production of the reaction requires a delicate regulation of the blast, which is quite out of the question with his method. It is altogether a different matter to concentrate copper, which has a greater affinity for sulphur than iron in a matte, than to reduce lead, which oxidizes and volatilizes readily. With silicious ores, slags rich in lead and silver could not be avoided, unless iron were used as a precipitant, while calcareous ores would be practically infusible or would call for heavy fluxing. With iron or copper pyrites, containing precious metals or not, many circumstances favor the process; with lead ores or even lead matte, everything is against it, and we believe that Mr. Hollway has quite an erroneous opinion of the difficulties to be avoided in lead smelting. Little more can be said in favor of the following plan: "If poor lead ores are added to a furnace charge of cupreous pyrites, the silica they contain will be utilized and combine with the resulting oxide of iron to form slag, the galena will be volatalized and be recovered as a sublimate, while any silver present will enrich the regulus. At present, by a costly process of crushing and washing these ores, the galena is concentrated, although a large proportion is left with the *débris* and passes with the water into the streams, rendering the existence of fish in such waters impossible. The water power now used for washing the ore could in many cases be employed for producing the blast." We fear that Mr. Hollway would find that the only advantage gained would be the preservation of the fish to which he so cautiously calls attention, for the amounts of lead lost by "sublimation" would be just as large, if not larger, than those abandoned by dressers in the tailings. Mr. Hollway is covering the whole range of metallurgy too rapidly to take a careful survey of what he is pre-empting, and we would advise lead smelters to continue to blow 5 to 13 per cent. out of their stacks until he has shown practically that he can turn out lead economically, according to the formula: Pb S + 2 Pb O = 3 Pb + SO^2. We notice that Mr. Hollway is quick to apply recent discoveries in the metallurgy of steel to that of other metals. He advises the use of basic lining. Why does he not supersede the cupellation of lead by an adaptation of the Bessemer process? The only drawback, a silica lining, is overcome. Perhaps a Ponsard or a Pernot furnace would do the work.

EXTRAORDINARY WEAR OF AN IRON RAIL.

At the meeting of the American Institute of Mining Engineers, Mr. W. E. Coxe, of the Philadelphia and Reading Rolling Mills, exhibited an iron rail made at Reading in 1870, which had until 1878 carried 67,000,000 gross tons of freight, cars and engines, having been worn at the top of the head only 3-16ths of an inch during its nine years of service. The head was made from puddled iron bars, piled, heated and rolled into bars, 4½ and 3 inches wide by 1 inch thick, these bars breaking joints, heated and rolled into slabs 9 inches wide and 2 inches thick; the balance of the rail pile, which is in section 9 inches square, was made of 4½ and 3-inch bars, rolled from two-thirds old rails and one-third puddled iron. This was heated and bloomed, and then reheated before rolling in two-high rolls into the finished rail. The test pieces from the head bar of this rail gave a tensile strength of 63,000 pounds. The borings from the head of the worn-out rail analyzed as follows:

Phosphorus	.422
Carbon	.027
Silica	.392
Sulphur	.032
Manganese	.164
Iron	98.963
	100.000

In making comparisons of the endurance or wearing qualities of iron and steel rails only the best of each kind should be taken, and the difference will not be nearly as great as has generally been assumed.

An Old English Trade Union.

One of the oldest trade unions in England is the Ironfounders' Society, which was established in February, 1809, at Bolton-le-Moors, Lancashire, and for 16 years was an illegal association, every member of which was liable to criminal prosecution. *Engineering*, which has been publishing careful abstracts of the reports of the trade unions connected with the iron and machinery trades, gives the following data on the contributions, disbursements and membership of the society, which deserve full attention, as they offer another good example of the work done by English trade unions, and show how their funds are collected and expended:

The admission of members into the society is regulated by a graduated scale of entrance fees, ranging from $6.50 for those from 20 to 21 years of age, up to $17.18 for those between 44 and 45 years of age, the yearly increase being at the rate of 24c. for every year up to 31, 28c. up to 37 and 73c. above that age. The contributions are 24c. weekly for full-benefit members, 18c. weekly for partial benefits, and 12c. per week for what are called third-class members, the benefits being proportionately less according to the reduced scale of weekly payments. Those who enter the society after they are 36 years of age have to pay an additional amount, varying from 3c. to 6c. per week, up to the age of 45. Accident and other levies are, in all cases, extra.

The benefits are as follows: Sickness, $2.18 per week for 13 weeks, $1.94 for 13 weeks, $1.68 for 26 weeks, $1.21 for 52 weeks, and 72c. so long as the illness continues. Superannuation allowance is from 84c. to $1.45 per week, according to the term of membership. The funeral benefit is $48.40 for a member and $24.20 for a member's wife; $726 are given in case of accident, which is $242 more than in any other society. Members out of work are paid $2.18 per week. Those who emigrate have their passage paid and a grant of $4.84. The strike pay is $2.66 per week, with 48c. extra for the wife, and 36c. for every child under 12 years of age.

At the end of the year, 1878, the society had 112 branches, and 12,620 members. The number of branches is the same as in 1877; the number of members has increased by 18, after allowing for deaths and exclusions. In point of numbers, the society has been nearly stationary for the past three years. The number of new members admitted during the year was 606; those excluded, 374; lost by death, 163.

The total income for the year, from all sources, was $176,260. The various items constituting this amount were: Contributions, $148,858; entrance fees, $3786; fines, $1718; accident levies, $5358; benevolent levies, $703; auxiliary levies, strike purposes, $4268; bank interest, $6613. The balance was made up of miscellaneous items and cash returned.

The total expenditure for the year was $275,780. The chief payments were made under the following heads: Donation benefit and traveling relief, that is, to members out of work, $186,276. At the commencement of the year, 1768 members were on the fund, at its close there were 2615; on an average throughout the year, 1842 were receiving this benefit each week. Sick benefit cost the society $31,562; superannuation, $17,683; funerals, $9704; accidents, $7839; grants from the benevolent fund, $2098; railway fares advanced to members, $578, making a total of $254,540 for benevolent purposes alone during the year.

The total cost of strikes to the society was $3564, or if we add the grants given to other trades for similar purposes, $799, it will amount to $4363. This item is insignificant when compared with the preceding figures.

The English lead industry is very badly depressed, sharing the condition of iron. The Duke of Devonshire has given notice of his intention to close his mines at Grassington on the 1st of August. Production of the "North" mines has fallen off more than 22,000 tons as compared with last year.

The Grievances of the Pennsylvania Coal Miners.

In an address to a body of workingmen assembled in St. Louis, John Fincher, who has lived for 40 years in Carbon County, Pa., spoke of the hardships of the boss system, the store system, the hut-renting system, the medical attendance fee system and the liberal coal weight system, all tending to depress the workingmen. Shanties, called homes, erected at a cost of $50, were rented to the miners for $36 per annum. The stores were owned and controlled by the bosses, and at the end of the year the miner found that his family had eaten up all his earnings, and that the balance stood on the wrong side. Against his wages account at the office stood an account for medical attendance at the rate of 75 cents a month, and, if he had an increase in his family, special charges of $5 in each case. The "black list" was another institution of oppression. When a miner quitted work at one mine the fact would be telegraphed to all offices throughout the coal district, with a description of the man, and every avenue of employment would be closed against him and his family. Miners could not avail themselves of educational facilities for their children, because the bosses would, as soon as a child was able to go into the slate-shoot, demand that he or she be sent there; any refusal would be met by throwing the whole family out of employment. A bill was once introduced into the Legislature to regulate the weighing of coals by providing weight scales at the shaft, but an iniquitous permissive clause was thrown in by the colliery owners, under which it was provided that in cases where the employer and employee agreed to dispense with the scales, none need be provided in the mines. The effect was that no weight scales in the interest of the miner are in use in the coal region of Pennsylvania. The liberal weight system operated to the injury of the workingman in the pit.

As to the Molly Maguires, Mr. Fincher claimed that the sentiment of the coal district was entirely opposed to acts of lawlessness and crime; the population, or at least 96 per cent. of it, respected the laws, and demanded the punishment of evil-doers. In a densely populated labor district, however, as in all large communities, a percentage of bad characters could be found, and it was wrong and unjust to visit the sins of an isolated few upon organizations for the protection of labor interests.

Steel from Phosphoric Pig.—Mr. James Henderson, in a circular recently issued, calls attention to his patent, No. 106,365, dated Aug. 16, 1870, for making steel from phosphoric pig, with the aid of fluorspar and iron ore, in an improved gas reverberatory furnace lined with lime or magnesian lime, so prepared that it can be put in as dust and harden rapidly under the action of a high heat, thus rendering repairs an easy matter. Mr. Henderson estimates the cost of reagents, coal and labor at $2.14 per ton, on the basis of an output of 60 to 70 tons of steel in 24 hours, from a furnace costing $4000. The waste is replaced by the amount of metal reduced from the ore, while the value of the clay produced is considered equal to one-half the cost of the fluorspar, which reduces the figure given above to $2.00 per ton. Early experiments made by Mr. Henderson, have taught him that the action of fluorine and oxygen remove the silicon, phosphorus and one-half of the carbon in 15 to 20 minutes, while the remainder of the carbon is removed in from one to two hours by charging ore. He has found out also, that manganese may be alloyed with iron and steel by introducing oxide of manganese into his fluorspar mixture.

The offer of a bonus by several of the English trades unions to such of their members as would emigrate, is being accepted. A cable dispatch of last Monday states that nearly 300 engineers, on a strike at Bradford, are prepared to emigrate to the United States and Canada, in accordance with invitations received from various branches of the Amalgamated Engineers' Society in the principal engineering centers.

Special Notices.

Trade Report.

Office of The Iron Age, Wednesday Evening, July 30, 1879.

The movements in the financial markets have been unimportant since our last report. The money market continues very easy at 2 @ 3 per cent. to borrowers on call.

Government bonds have declined, especially for 4 per cents. We give below the closing quotations of governments. Railroad mortgages are in demand and quotations firm.

In the stock market there has been an active speculation in railroad securities. The unsatisfactory condition of foreign crops, and the very satisfactory condition of our own, makes it certain that we shall have an enormous Eastward movement of grain for export, giving increased earnings to the through lines, and those traversing the principal grain-growing districts. The principal dealings have been in the so-called granger stocks, and in those which are usually the favorites of speculators. We give below the closing quotations of stocks on the active list.

The bank return shows an increase of $2,887,925 in surplus reserve, which now stands at $13,369,950, against $22,571,775 at this time last year, and $16,043,075 at the corresponding period in 1877. The loans show a decrease this week of $2,137,200; the specie is down $84,100; the legal tenders are increased $3,779,200; the deposits other than United States are up $3,228,700, and the circulation is increased $17,900.

The following is an analysis of the bank totals of this week compared with that of last week:

	July 19.	July 26.	Comparisons.	
Loans	$262,719,800	$260,582,600	Dec.	$2,137,200
Specie	20,610,700	19,927,600	Dec.	84,100
Legal t'nd'rs	50,508,900	54,288,100	Inc.	3,779,200
Tot. reserve.	70,520,600	74,215,700	Inc.	3,695,100
Deposits	240,154,300	243,383,000	Inc.	3,228,700
Reserve required	60,038,575	60,845,750	Inc.	807,175
Surplus	10,482,025	13,369,950	Inc.	2,887,925
Circulation	20,501,600	20,549,500	Inc.	17,900

The foreign trade movements at the port of New York since our last issue are shown in the following tables:

IMPORTS.

For the week ended July 26:

	1877.	1878.	1879.
Dry goods	$1,596,105	$1,609,405	$1,814,707
General mdse.	4,621,498	3,371,254	4,353,706
Total for week.	$6,217,603	$4,980,659	$6,168,413
Prev. reported	190,327,623	158,778,213	170,784,479
Since Jan. 1	$196,545,226	$163,758,872	$176,952,892

Included in the imports were items of merchandise valued as follows:

	Quantity.	Value
Anvils	192	$1,639
Brass goods	13	1,903
Bronzes	7	1,491
Chains and anchors	51	1,897
Copper		184
Cutlery	115	46,872
Guns	59	12,027
Hardware	2	51
Iron, pig, tons	400	4,600
Iron, sheet, tons	31	2,516
Iron ore, tons	1,799	4,530
Iron, other, tons	857	20,438
Metal goods	136	24,511
Nails	19	2,811
Needles	16	6,497
Old metal		9,008
Plated ware	2	67
Percussion caps	25	5,718
Saddlery	7	1,215
Steel	905	10,545
Silverware	7	567
Tin, bxs	35,782	172,058
Tin, 1,500 slabs	56,618	8,002
Wire	30	3,675

EXPORTS, EXCLUSIVE OF SPECIE.

For week ended July 29:

	1877.	1878.	1879.
For the week	$5,140,795	$7,460,868	$6,512,830
Prev. reported	150,244,782	189,593,815	176,526,929
Since Jan. 1	$155,385,577	$197,054,683	$183,039,759

EXPORTS OF SPECIE.

For the week ended July 26:

Total for the week	$107,100
Previously reported	11,491,598
Total since January 1, 1879	$11,598,698

Government bonds were strong throughout, closing at the highest prices of the day. We quote:

	Bid.	Asked.
U. S. Currency 6's	121½	125
U. S. 6's 1880 registered	104⅛	104½
U. S. 6's 1880 coupon	104⅛	104½
U. S. 6's 1881 registered	104⅞	105
U. S. 6's 1881 coupon	104¾	105
U. S. 5's 1881 registered	102⅞	103
U. S. 5's 1881 coupon	104	104⅛
U. S. 4½'s 1891 registered	106⅛	106⅜
U. S. 4½'s 1891 coupon	106⅛	106¼
U. S. 4's 1907 registered	102	102⅛
U. S. 4's 1907 coupon	102	102⅛

The closing quotations were as follows:

	Bid.	Asked.
American District Telegraph	62	63
Atlantic and Pacific Telegraph	35¼	35½
Burlington and Quincy	117¾	118¼
Caribou	6¼	6⅜
Canadian Southern	59½	60
Canton	39	41
Col., Chicago and Indiana Central	7⅜	7¾
Cleve., Col., Cin. and Ind	53	53½
Cleveland and Pittsburgh	90¾	100
Chicago and Alton	88⅛	88¼
Chicago and Alton Pref		114½
Chic., St. Paul and Minn	40½	41
Delaware, Lack. and Western	61⅝	61¾
Delaware and Hudson Canal	49⅝	49¾
Express—Adams	104½	105
" American	46¾	47⅛
" United States	47	48
" Wells, Fargo & Co	97	97½
Erie	28¼	28⅜
" Pref	52¼	52½
Fort Wayne	110	110¾
Hannibal and St. Joseph	19¾	20
" " " Pref	42⅛	42⅜
Homestake	38	38½
Illinois Central	89⅛	89½
Kansas Pacific	57	59¼
Kansas and Texas	16¼	16⅜
Lake Shore	79¼	79⅜
Louisville and Nashville	52½	52¾
Manhattan Elevated	41¾	42
Michigan Central	82½	82¾
Morris and Essex	92⅛	93
Metropolitan Elevated	120½	123
New York "	124	125
New Jersey Central	54	54⅛
Northwest	72½	72⅝
" Pref	98½	98¾
Ohio and Mississippi	16¼	16⅜
" " Pref	46	46⅛
Pacific Mail	14¾	15
Panama	157	..
Quicksilver	14	15
" Preferred	38¾	39½
Rock Island and Pacific	139	139½
St. Louis and Iron Mountain	26¾	27
St. Louis Kansas City Northern	18⅞	19
" " " Pref	52	52¼
St. Louis and San Francisco	9⅝	9¾
" " Pref	11½	11¾
St. Paul	62⅜	62½
" Pref	95⅛	95⅜
Standard	28½	29½
Sutro Tunnel	4⅜	4½
Union Pacific	77⅝	78
Wabash	36½	37
Western Union Telegraph	90¼	90½
Northern Pacific	16¾	17
" "	47¼	47⅞

GENERAL HARDWARE.

There are a good many Southern buyers in town, and notwithstanding the discouraging accounts from sections suffering with yellow fever, fair orders are being placed. The demand for General Hardware on Western account is, for the month of July, unusually active, and is accounted for in some measure by the growing belief that many lines of goods will command higher prices before long.

We print below advanced prices on Cast Butts by Sargent & Co. and the Reading Hardware Co., and although no concert of action, so far as we can learn, has taken place among the makers of these goods, it is believed that they are all tired of the unremunerative business they have been doing for a long time past, and that the advanced prices quoted below will become general. In other lines of cast goods which have been selling at extremely low prices, advanced quotations are under consideration, and when it is remembered that Iron and labor have advanced within the past few months, and that the Iron market is steadily looking up, such action is only in the natural order of business:

CAST BUTTS.

From this date, until further notice, our prices of Cast Butts will be as follows:

Page in 1877 Catalogue.		Discount Per cent.
2,	No. 10, Narrow, Fast Joint	50&10
2,	No. 10, Broad " "	60
3,	No. 20, Narrow " "	50
3,	No. 20, Broad " "	50&10
4,	No. 21, Narrow " "	35
4,	No. 21, Broad " "	50
5,	No. 15, Loose Joint, Narrow and Broad	66⅔
6,	No. 50, " " " " "	65
7,	No. 51, " " " " "	65
8,	Nos. 52, 53, 56, Loose Joint	70
9,	Nos. 58, 59 " "	70
10,	No. 60, Loose Joint	65
	No. 61 " "	65
11,	Nos. 62, 63, 66, Loose Joint	70
12,	Nos. 68, 69 " "	70
13 new,	No. 137, Loose Pin	70
14 "	No. 40 " "	70
15	No. 42 " "	70
15	No. 43 " "	70
15	No. 46 " "	75
16	Parliament Butts	60
16	Mayer's Hinges	70
16a	No. 142, Loose Pin	70

Ten per cent. extra discount for prompt cash.

Sargent & Co.,
New York and New Haven, Conn.

New York, July 28, 1879.

The Reading Hardware Co., Reading, Pa., and No. 81 Reade street, New York, under date of July 25, quote Cast Butts as follows. The advance on these goods is about 10 per cent. over former quotations:

Narrow Loose Joint Butts	65&10
Broad " " "	65&10
Narrow Fast " "	50&10
Broad " " "	55&10
Loose Pin Acorn Butts, Plain	70&10
Loose " " " Japanned	70&10
Loose " " " Japanned S'l Tip	75&10
Mayer's Butts	70&10
Parliment "	60&10

The demand for Nails is more active than at our last writing, and although no change in quotations has occurred the tendency is toward more remunerative prices; thus, while small and medium sized orders are easily placed at current rates, it would be difficult to place an order for a large lot at the minimum price now ruling. We continue to quote 10d to 60d $2.25, net, in a small way, but for orders of 50 to 100 kegs $2.15 would be accepted.

H. Chapin's Sons, Pine Meadow, Conn., have issued, under date of 1st instant, a revised edition of their illustrated catalogue and price list. The following are their discounts for the ensuing season:

H. CHAPIN'S SON'S NEW CATALOGUE OF 1879—DISCOUNT SHEET.

Pine Meadow, Conn., July 1, 1879.

	Dis. per cent.
Boxwood Rules	70
Ivory "	60
Miscellaneous Rules	60
Bench Planes, Common "Pearce"	50
" Extra and Premium	35
" Apple, Box and Rosewood	30
" with English Irons instead of American	25
Ship Planes	35
Cooper "	35
Miscellaneous Planes	35
Molding Planes	35
Grooving Plows	30
Gauges	50
" Scholl's Patent	50
" Marden's "	50
Plumbs and Levels, Non-adjustable	65
" " Patent Adjustable	65
" " L. L. Davis' Pat. Adjust'ble	60
Pocket Levels	60
Level Glasses	60
Hand Screws	25
Bench Screws	20
Turning Saw Frames	25
" " and Saws	25
Chisel Handles	50
File and Awl Handles	50
Plane Handles	50
Saw Handles	50
Door Stops	50
" Rubber Tipped	50
Spoke Shaves, Mosher's Patent	50
Box Scrapers	50
Try Squares	50
Sliding T Bevels	50
Screw Drivers	50
Mincing Knives	50
Awls	50
Plane Irons	10
Plane Stops	10

Discount 10 per cent. for cash, if received within 30 days from date of invoice. Accounts unpaid at the expiration of 60 days, subject to draft payable at sight for the full amount of invoice. Special freight rates secured to all principal points. Former rate sheets and catalogues are hereby made void.

John C. Jewett & Sons, Buffalo, N. Y., have issued, under date of August 1, an appendix to their general catalogue, in which they illustrate a handsome assortment of House Furnishing Goods suitable for the fall season. Among the goods presented are a good assortment of Common and Fancy Coal Hods, 14 styles of Coal Vases, with and without fire-set attachment, Polished Steel and other Fire Sets, Coal Tongs, Zinc Stove Boards, Jewett's Patent Water Coolers and Filters, Self-Righting Cuspadores, Patent Dust Pans, Bird Cages in entirely new designs, Hand Fluters, Patent Sad Irons, &c.

George N. Pierce & Co., Buffalo, N. Y., have issued a circular in which they illustrated their assortment of Coal Hods. Among their patented goods they show the "Boss" Funnel Hods in four styles. They also show these goods covered, Fancy Helmet Hods and their "Gem" Coal Hods, improved 1879 pattern, with square mouth.

The Branford Lock Works have removed their office in this city to No. 98 Chambers street.

The Frary Cutlery Company have reduced their prices to about the same figures as adopted by the Table Cutlery Manufacturers' Association.

Graham & Haines have added to their warerooms, at No. 113 Chambers street, the floors over the store, and have turned the first loft into a sample room, which is conveniently and handsomely arranged.

We invite the attention of the Hardware trade to the advertisement of Bissell & Welles, which will be found among "Special Notices" on the opposite page. As announced in our last week's issue, they will sell at auction, on Tuesday and Wednesday. August 12 and 13, the entire stock of the Hart, Bliven & Mead Mfg. Co., at their store, Nos. 107 Chambers and 91 Reade streets. Included in the sale will be all of the handsome sample cases which were originally constructed for the Centennial Exhibition. These cases can be easily adapted to almost any sample room. In addition they will sell a long line of wall cases suitable for General Hardware. All of these are of modern construction. The samples which they contain will be sold separately or with the cases, as may be desired. The advertisement referred to contains a memorandum of a portion of the stock which will be offered for sale. The sale will be without reserve, for immediate cash.

Mallory, Wheeler & Co. will issue, under date of August 1st, their new revised list of Door Locks, Latches, Knobs, Bronze Door Furniture, &c., which we give to-day from an advanced copy furnished us by Sargent & Co., who are their New York agents. Padlocks, as before announced, remain unchanged. Introducing this list they say: "Notwithstanding the reductions we have now made in prices for our goods, the high standard of quality will be maintained; we shall also continue to add to our large variety new and desirable goods. Our Front Door Locks and Vestibule Latches Nos. 1955, 01955, 1955½. 01955½, 1956, 01956, 1956½ and 01956½, are now made with fronts of new design similar to Nos. 1430 and 1430½, as illustrated on pages 25 and 26 of this book. We have also improved the fronts of Nos. 1038, 1040, 1047, 1050, 1480, 1482, 1484 and 1486, also Mortise Knob Locks Nos. 1086 and 1091. Our new Imperial Bronze is recommended as a desirable finish, harmonizing with the present style of decorations; the background is dark and raised surfaces bright. We furnish Imperial or Dark Bronze at the price of our regular Gold Bronze, and can match any shade desired to sample furnished. The following Store Door Locks are now made with our new all Steel Folding Keys, Nickel Plated, as illustrated with Lock No. 506, page 9, 1879 Appendix, Nos. 416, 416½, 416¾, 418, 419, 420, 466, 468, 470, 470½, 471½, 472, 472½, 507, 508, 509, 510, 511, 520, 521, 522, 523 and 524. We shall also, soon as possible, adapt our general line of Store Door Locks to the same Key."

TERMS OF SALE.

Discount on all goods on our list, except Padlocks and Padlock Keys, 50 per cent. net cash, instead of 35 and 10 per cent., as heretofore. Padlocks and Padlock Keys, discount 33⅓ per cent., net cash. Subject to our sight drafts, 30 days after date of invoice, with funds par in New York, Boston or Philadelphia. A bonus of 2 per cent. may be deducted from all bills if paid within 30 days of their date. Goods delivered at depot in New Haven. One per cent. allowed on all bills for freight to New York. All orders will be subject to our prices ruling at time of shipment. Prices not guaranteed. Moderate charge for boxes.

MALLORY, WHEELER & CO.'S REVISED LIST PRICES.

In Numerical Order. August 1, 1879.

No.	Price. Per doz.
A	$1.86
D	2.16
E	1.50
F	1.65
G	1.40
H	1.50
J	1.86
K	.97
0	1.25
1	4.30
01	3.35
01⅛	3.10
001⅛	3.90
01¼	4.00
X01¼	3.70
001¼	4.95
X001¼	4.65
0001¼	6.62
X0001¼	6.30
1½	5.25
01½	4.30
X01½	3.95
01¾	5.36
X01¾	5.05
2	21.50
4	42.88
6	14.75
7	12.25
8	27.36
9	29.00
10	39.50
12	42.34
14	69.00
16, 1 key	16.64
16, 2 keys	20.80

No.	Price. Per doz.
16½	16.00
18	29.75
19	17.70
20	20.13
21	26.50
22	33.50
24	29.00
26	32.00
27	47.00
28	26.00
29	39.25
30	41.00
Escutcheons.	
30½	43.12
31	59.70
31½	58.10
32, 1 key	28.00
32, 2 keys	32.37
32½, 1 key	31.65
32½, 2 kys	35.65
33, 1 key	41.62
33, 2 keys	46.00
33½, 1 key	45.25
33½, 2 kys	49.25
34	54.16
35	68.63
36	70.64
37	83.50
38	61.50
39	55.50
40	78.00
41	23.70
42	201.00
43	33.70
44	241.25

No.	Price Per doz.
46	44.38
47	58.75
48	59.00
49	161.00
50	42.25
51	134.00
53	40.75
53½	53.68
Mineral Jap'd.	
54	10.95
White Japan'd.	
54	12.00
White Plated.	
54	14.66
55	29.60
Mineral Jap'd.	
56	22.75
White Japan'd.	
56	24.00
White Plated.	
56	26.50
57	7.50
57½	9.00
58	14.18
58¼	16.00
58½	17.88
58¾	19.75
59	6.70
X59	5.87
60	16.00
61	7.18
X61	6.32
62	19.75
63	7.40
65	21.00

No.	Price Per doz.
66	44.38
66½, 1 key	8.60
66½, 2 kys	12.50
67, 1 key	9.75
67, 2 keys	13.67
68	134.00
69	16.50
69½	14.38
70	24.30
70½	22.25
71	14.18
071	12.95
72	59.00
73	6.50
74	169.00
75	7.60
76	30.00
76½	30.00
77	7.00
77½	10.50
78	10.50
79	5.55
80	19.64
080	15.00
80½	17.58
080½	13.16
80¾	16.55
80⅞	14.50
81	5.00
82	9.90
83	7.45
83½	8.47
84	9.38
85	6.70
86	15.00
87	11.10
88	18.36
88½	24.00
90	29.00
91	16.00
091	14.80
92	24.12
92½	21.44
	Per set.
93, Brass	15.00
Electro or N'kel Plated.	
93	21.50
Hand Plated.	
93	35.70
093, Brass.	6.67
Electro or N'kel Plated.	
093	11.42
Hand Plated.	
093	22.50
0093	3.67
93½, Brass	9.46
Electro or N'kel Plated.	
93½	14.50
Hand Plated.	
93½	23.00
093½, Br'ss	4.42
Electro or N'kel Plated.	
093½	9.5
Hand Plated.	
093½	16.08
0093½	2.70
	Per doz.
94	15.44
94½	20.25
	Per set.
95, Brass	16.00
Electro or N'kel Plated.	
95	23.42
Hand Plated.	
95	38.32
095, Brass.	6.86
Electro or N'kel Plated.	
095	12.94
Hand Plated.	
095	24.12
	Per doz.
96	10.30
97	8.95
98	6.78
99	1.85
100	9.50
101	3.70
102	6.16
103	1.85
104	1.85
105	2.68
105½	4.37
106	18.50
107	12.33
108	11.50
109	4.64
110	7.16
111	6.40
0111	2.80
0111½	4.00
0111¾	4.56
112	3.70
0112	4.00
112½	4.50
113	7.80
0113, 1 key	4.82
0113, 2 kys	6.58
114	16.00
0114, 1 key	6.54
0114, 2 kys	8.25
115	10.32
0115, 1 key	7.83
0115, 2 kys	9.58
116	11.50
0116, 1 key	9.10
0116, 2 kys	10.85
117	13.20
0117, 1 key	7.50
0117, 2 kys	9.25
118	24.66
0118, 1 key	8.84
0118, 2 kys	10.60
Mineral Jap'd.	
119	28.00
White Japan'd.	
119	29.00
White Plated.	
119	31.65
0119, 1 key	10.18
0119, 2 kys	12.00
120	29.40
Mineral jap'd.	
121	32.75
White jap'd.	
121	34.00
White plated.	
121	36.42
122	1.85
123	2.47
123½	3.08
124	6.16
125	11.25
126	21.30
126½	7.40
127	7.00
127½	12.10
128	11.75
128½	7.75
129	23.00
129½	6.16
130	15.25
130½	4.40
131	4.37
132	11.00
133	.75
134	12.50
135	3.60
136	13.70
138	26.34
139	16.00
140	9.00
141	11.95
142	9.65
143	12.62
144	10.75
145	8.25
146	11.60
147	9.20
148	12.44
149	10.16
149½	11.42
150	12.75
151	12.00
152	13.50
153	40.00
153½	53.00
154	2.17
155	2.68
156	2.68
157	2.17
158	4.10
159	2.95
160	4.80
161	2.44
162	6.32
162½	2.17
163	3.24
164	7.05
165	3.97
166, 1 key	13.60
166, 2 keys	17.66
167	5.28

No.	Price Per doz.
168, 1 key	10.72
168, 2 keys	13.75
169	6.00
170, 1 key	14.95
170, 2 keys	19.48
170½	3.22
171	4.10
172, 1 key	11.94
172, 2 keys	15.95
173	4.80
174	13.00
175	6.32
176	14.90
177	7.05
178	11.25
178½	10.00
179	5.55
0179	3.70
180	13.75
180½	12.22
181	8.25
0181	6.16
X0181	5.55
0181½	6.16
182	4.75
183	6.50
0183	4.94
X0183	4.30
0183½	4.94
184	6.40
185	9.25
0185	7.40
X0185	6.78
0185½	7.40
186, 1 key	8.80
186, 2 keys	10.85
187	10.50
0187	8.00
X0187	7.40
0187½	8.00
188, 1 key	7.83
188, 2 keys	9.85
188½, 1 k.	7.34
188½, 2 k.	9.38
189	5.47
190	7.75
191	4.72
192	9.14
193	2.68
194	3.78
195	3.35
196	5.15
198	6.30
199	8.17
200	7.32
202	2.68
204	3.50
205	2.50
206	4.48
207	2.76
208	5.17
209	3.40
210	4.64
211	4.64
0211	3.70
00211	3.40
00211½	4.29
212	5.84
213	5.87
214	8.00
215	5.84
X215	5.25
0215	4.72
X0215	4.30
00215	4.42
X00215	4.00
0215¼	6.00
X0215¼	5.63
215½	8.00
X215½	7.40
00215½	5.30
X00215½	4.90
216	1.60
217	7.08
X217	6.50
217½	8.90
X217½	8.33
0217½	7.18
X0217½	0.78
218	1.60
0218	1.60
219	8.07
220	2.80
220X220½	3.00
220½	3.16
221	9.62
222	2.80
222X222½	3.00
222½	3.10
223	7.10
0223	5.17
224	3.16
224½	3.97
225	8.00
227	12.75
228	5.87
0228	4.50
229	14.45
230	6.80
231	9.00
X231	8.28
0231	6.86
X0231	6.43
0231⅛	5.90
X0231⅛	5.60
0231½	6.20
X0231½	5.90
233	9.65
X233	8.87
0233	8.50
X0233	7.75
235	10.32
X235	9.50
0235	7.90
X0235	7.20
0235½	7.10
X0235½	6.70
0235⅝	6.70
X0235⅝	6.35
236	1.86
236X236½	5.36
236½	7.60
237	11.25
X237	10.32
0237	9.22
X0237	8.50
238	1.86
0238	1.86
238X238½	5.36
238½	7.60
239	6.43
0239	4.80
0239⅛	3.70
0239½	4.05
0239⅝	4.30
240	9.25
240X240½	11.60
240½	13.94
241	6.83
0241	5.36
242	9.25
242X242½	11.60
242½	13.94
243	7.16
0243	5.25
0243½	4.70
245	7.64
0245	5.70
247	7.50
X247	6.85
0247	6.00
X0247	5.50
0247⅛	5.10
X0247⅛	4.93
0247½	5.50
X0247½	5.25
0247⅝	5.75
X0247⅝	5.55
248	9.25
248X248½	11.60
248½	13.94
249	7.85
X249	7.18
0249	6.68
X0249	6.10
250	9.25
250X250½	11.60
250½	13.94
251	8.17
X251	7.50
0251	6.22
X0251	5.65
0251½	6.00
X0251½	5.75
252	1.60
253	1.60
0253	1.60
253½	8.70
X253½	8.00
0253½	6.75
X0253½	6.14
254	1.86
255	1.86
0255	1.86
256	5.88
257	5.88
258	6.50
259	6.50

No.	Price Per doz.
260	5.87
260½	5.87
261	33.25
261½	12.33
261¾	12.33
262	29.60
262½	29.60
263	51.75
264	59.00
264X265	62.50
265	65.86
265X265½	67.50
265½	69.00
266	71.70
266X267	76.50
267	81.36
267X267½	99.86
267½	118.25
268	22.00
269	103.50
268X270	23.66
270	25.35
270X271	26.88
271	28.50
272	51.75
272½	51.75
273	103.50
273½	103.50
274	33.30
275	51.75
276	1.23
276½	1.23
277	3.70
277½	5.25
280	1.23
281	1.50
282	3.70
283	3.70
284	6.75
285	2.10
286	2.68
287	5.25
288	5.25
290	1.40
291	1.75
293	3.00
294	24.66
295	3.00
296	5.25
298	3.70
299	1.23
299½	1.23
300	.75
301	1.85
301½	1.85
302	.75
303	4.72
304	1.85
304½	1.85
305	4.00
306	4.95
307	4.00
308	4.95
309	8.30
310	6.75
310½	6.75
311	8.00
312	.40
312½	.40
313	.40
313½	.40
314	.62
315	2.50
316	.62
317	20.34
318	1.25
318½	1.25
319	3.08
320	.40
320½	.40
321	3.08
322	.40
322½	.40
323	1.25
323½	.40
324	1.25
325	.75
326	1.25
327	13.50
327½	.40
328	.40
328½	.40
329½	.40
330	4.37
331	5.25
332	4.37
333	4.95
333½	4.95
334	4.95
335	5.00
335½	4.00
336	5.50
337	.40
338	19.75
338½	5.00
338¾	26.50
339	4.37
339½	4.00
341	4.37
341½	13.56
342	17.25
343	2.80
344	18.50
345	4.95
346	13.56
347	.62
348	13.56
349	13.56
349½	18.50
350	18.50
351	3.08
352	26.50
353	5.55
354	61.64
355	26.50
357	4.30
358	26.50
359	.75
360	33.90
361	.75
362	59.15
364	3.08
365	4.37
366	3.08
367	4.37
368	3.70
370	4.30
371	4.00
372	11.10
373	2.80
374	4.95
375	1.25
376	6.10
378	9.25
379	5.55
380	1.60
381	1.60
381½	1.60
382	1.60
383	4.95
383½	4.95
384	1.25
385	.94
385¼	5.55
385½	13.40
386	1.25
387	.94
387¼	6.16
387½	13.66
388	2.50
389	26.50
390	2.80
391	3.08
392	24.66
394	37.00
394½	37.00
395	.94
395¼	5.55
395½	13.40
396	88.75
397	.94
397½	6.16
397½	13.68
398	2.80
398½	2.80
402	7.40
402½	7.40
404	7.40
405	1.85
405	3.08
406½	3.08
408	30.82
408½	30.83
409	51.50
410	.40
412	8.63
413	30.82
413½	30.82
414	59.20
415, 1 key	18.20
415, 2 keys	24.45
415½, 1 k.	10.00
415½, 2 k.	22.30
415¾, 1 k.	12.35
415¾, 2 k.	18.60
416, 1 key	16.64
416, 2 keys	20.80
416½, 1 k.	14.80

No	Price Per doz.
416½, 2 k.	18.95
416¾, 1 k.	11.10
416¾, 2 k.	15.25
418	29.75
419	17.70
420	20.12
421	33.37
422	26.50
426	25.90
427	29.50
430	29.50
431	33.30
432	51.75
433	55.50
434	92.50
435	98.62
436	29.50
437	33.30
438	51.80
439	55.50
440	5.88
441	98.62
442	5.88
443	92.50
444	6.50
446	6.50
447	3.70
447½	5.55
448	3.70
448½	5.55
449	7.40
449½	9.25
450	7.40
450½	9.25
459	16.64
459½	16.64
460	22.20
460½	22.20
461	22.20
461½	22.20
464	21.00
464X465	22.50
465	24.00
466, 1 key	13.60
466, 2 keys	17.66
467	29.44
468, 1 key	10.72
468, 2 keys	13.75
469	33.42
470, 1 key	14.95
470, 2 keys	19.50
470½, 1 k.	13.40
470½, 2 k.	17.63
471	55.50
471½, 1 k.	12.30
471½, 2 k.	16.32
472, 1 key	11.93
472, 2 keys	15.95
472½, 1 k.	10.72
472½, 2 k.	13.75
471X473	58.56
473	61.64
474	.75
474½	4.95
475	.75
475½	4.95
476	4.37
476½	13.56
477	4.37
477½	13.56
478	.40
479	.40
479½	.40
480	86.30
481	70.89
482	108.00
483	77.67
484	63.36
485	29.70
486	77.80
487	19.86
488	20.88
489	22.00
490	15.68
X490	14.00
491	16.64
X491	14.95
492	15.84
493	16.80
494	17.75
495	.75
495½	4.95
500	31.00
500½	27.66
501	32.16
501½	28.75
503	38.00
503½	34.63
504	40.00
504½	36.75
505	42.75
505½	39.40
506, 1 key	21.00
506, 2 keys	24.25
506½, 1 k.	23.50
506½, 2 k.	27.75
506¾, 1 k.	25.90
506¾, 2 k.	29.60
507	25.67
508	31.38
509	29.10
510	39.45
511	35.00
512	42.34
513	37.63
520	23.00
521	26.50
522	33.50
523	26.34
524	29.80
525	29.70
526	33.50
527	37.60
530	2.92
531	3.67
532	5.36
533	2.36
534	3.62
541	27.12
543	42.25
553	41.50
554	56.50
555	31.34
555½	29.50
555¾	27.68
556	27.10
556½	25.75
556¾	24.40
560	3.08
561	4.30
562	3.70
563	11.10
574	13.64
576	16.00
578	12.00
579	4.95
0579	3.08
580	13.66
581	7.40
0581	5.55
X0581	4.95
0581½	5.55
582, 1 key	10.10
582, 2 keys	12.25
183	6.16
0583	4.30
X0583	3.70
0583½	4.30
584	8.33
0584	6.78
X0584	6.16
0584½	6.78
585	12.50
587	9.25
0587	7.40
X0587	6.78
0587½	7.40
588, 1 key	9.33
588, 2 keys	11.50
589, 1 key	11.00
589, 2 keys	13.12
590, 1 key	10.00
590, 2 keys	12.00
592, 1 key	11.50
592, 2 keys	13.64
593, 1 key	10.44
593, 2 keys	12.60
594, 1 key	7.50
594, 2 keys	9.10
595, 1 key	6.73
595, 2 keys	8.38
600	10.68
0600	7.18
601	11.50
602	8.92
0602	6.20
603	10.50
604	15.00
605	18.00
606	24.12
608	26.80
610	25.90
611	29.60
620	14.34
621	15.20
624	15.00
625	16.00
628	14.00

No.	Price Per doz.
629	14.75
630	14.18
631	16.00
659	51.75
660	49.30
661	66.60
662	10.50
665	33.50
666	40.50
668	55.50
669	22.20
670	18.50
671	7.40
671½	9.25
672	8.63
672½	10.50
675	7.40
675½	9.25
676	8.63
676½	10.50
677	9.25
677½	11.10
678	11.10
678½	12.94
700	25.00
701	22.20
702	16.00
703	14.80
710	4.95
711	6.00
712	8.00
713	9.25
714	3.08
715	6.16
716	9.86
717	18.50
718	29.60
725	2.30
726	3.75
727	4.66
728	6.25
752	42.10
0752	38.40
752½	31.65
0752½	27.95
753	45.56
0753	41.86
753½	34.38
0753½	30.70
754	49.00
0754	45.32
755	57.94
0755	54.24
755½	44.38
0755½	40.68
756	61.64
0756	57.94
756½	48.08
0756½	44.38
757	65.34
0757	61.64
761, 1 key	22.80
761, 2 keys	27.75
762, 1 key	24.66
762, 2 keys	29.60
766, 1 key	25.25
766, 2 keys	30.20
767, 1 key	27.12
767, 2 keys	32.05
771, 1 key	25.25
771, 2 keys	30.20
772, 1 key	27.12
772, 2 keys	32.05
782, 1 key	29.13
782, 2 keys	32.75
783, 1 key	32.00
783, 2 keys	35.70
792, 1 key	32.70
792, 2 keys	36.30
793, 1 key	35.20
793, 2 keys	38.80
797, 1 key	29.94
797, 2 keys	33.58
798, 1 key	32.80
798, 2 keys	36.42
800	11.10
803	6.16
806	3.70
809	.75
810	.75
811	2.50
812, per gro.	5.55
825	9.86
826	10.85
827	11.10
828	12.20
829	11.36
830	12.30
831	13.40
832	14.75
841	4.30
842, 1 key	5.30
842, 2 keys	8.00
843, 1 key	6.75
843, 2 keys	9.40
844, 1 key	8.68
844, 2 keys	11.36
845, 1 key	6.22
845, 2 keys	8.90
846, 1 key	7.64
846, 2 keys	10.32
847, 1 key	9.60
847, 2 keys	12.30
850	2.80
851, 1 key	4.30
851, 2 keys	5.55
852, 1 key	5.50
852, 2 keys	6.70
853, 1 key	6.32
853, 2 keys	7.56
854, 1 key	4.72
854, 2 keys	5.95
855, 1 key	5.92
855, 2 keys	7.16
856, 1 key	6.85
856, 2 keys	8.10
902	31.25
902½	22.20
903	34.55
903½	24.66
907	27.55
907½	18.50
908	30.85
908½	20.96
910	30.82
911	34.52
925	7.95
926	9.54
927	9.20
928	10.72
930	44.56
930½	34.84
931	49.58
931½	37.52
932	53.60
938	86.30
940	107.95
947	77.80
950	63.36
953	35.40
0953	31.70
953½	26.25
0953½	22.54
954	38.06
0954	34.36
954½	27.20
0954½	23.50
955	42.10
0955	38.40
955½	31.65
0955½	27.95
956	45.56
0956	41.86
956½	34.38
0956½	30.70
957	49.00
0957	45.32
986	9.50
987	8.35
988	6.75
989	5.50
991	4.75
993	5.80
993½	6.78
994	4.95
994½	6.16
995	7.10
996	8.00
997	10.00
998	10.48
999	7.25
1000	8.15
1001	10.12
1006	11.10
1011	8.63
1012	9.54
1013	11.42
1018	11.58
1021	19.72
1022	16.00
1023	5.63
1023½	6.86
1025	7.40
1026	9.00
1027	8.63
1028	10.16
1029	7.83
1030	9.46

No.	Price Per doz.
1031	8.15
1032	10.05
1033	8.60
1034	10.85
1035	8.80
1036	11.00
1038	92.50
1040	116.00
1047	84.50
1050	68.75
1053	26.00
1054	28.50
1056	28.50
1057	31.00
1058	32.40
1059	33.30
1060, 1 key	7.66
1060, 2 kys.	9.60
1061, 1 key	8.95
1061, 2 kys.	10.88
1062, 1 key	10.80
1062, 2 kys.	12.75
1063, 1 key	8.35
1063, 2 kys.	10.25
1064, 1 key	10.18
1064, 2 kys.	12.10
1065, 1 key	12.00
1065, 2 kys.	14.00
1066	13.56
1070	32.05
1077	13.56
1086	19.72
1087	16.00
1091	23.42
1092	28.14
	Per set.
1093	9.86
1093½	6.50
1095	10.50
	Per doz.
1096	13.56
1098	12.94
	Per pair.
1113	1.66
1114	2.17
1115	1.98
1116	2.47
1117	1.98
1118	2.47
1119	2.60
1120	2.79
1121	2.17
1122	1.85
1123	2.17
1124	2.17
1125	2.17
1126	2.17
1127	2.17
1128	2.47
1129	2.17
1131	2.17
1133	2.17
1135	2.17
1137	1.85
1139	1.85
1141	1.85
1143	1.85
1145	1.85
1147	1.85
1149	1.85
1151	1.85
1153	2.79
1155	2.79
1157	2.79
1159	2.79
1161	2.79
1163	2.79
1165	2.79
1166	2.47
1167	2.17
1169	2.17
1171	2.17
1173	2.17
1175	2.17
1177	2.17
1179	2.17
1180	2.17
1181	2.79
1183	2.17
1185	2.17
1186	2.17
1187	1.85
1188	1.85
1189	2.47
1189½	2.17
	Per doz.
1190	8.00
1190½	10.48
1191	8.00
1191½	10.48
1192	9.86
1192½	12.33
1193	9.86
1193½	12.33
1194	8.00
1194½	10.48
1195	8.00
1195½	10.48
1196	9.86
1196½	12.33
1197	9.86
1197½	12.33
1198	17.26
1198½	17.26
1199	17.26
1199½	17.26
	Per pair.
1200	4.30
1202	4.30
1204	4.30
1206	4.30
1208	4.30
	Each.
1212	1.55
1214	1.55
1216	1.85
1218	2.50
1220	1.85
1221	1.85
1222	1.85
	Per doz.
1223	11.10
1224	11.10
	Each.
1225	1.85
1226	2.17
1227	1.85
1228	1.25
1229	.94
1230	1.25
1231	.94
1232	1.25
1233	.94
1234	.67
1235	.94
1236	1.25
1237	1.25
1238	.94
1239	.94
1240	1.25
1241	1.25
1242	.94
1243	1.08
1244	.94
1245	1.08
1246	.80
1247	.80
1248	1.08
1249	.80
1250	.62
1250¼	.62
1250½	.62
1251	.62
1251½	.62
1252	.28
1252½	.28
1253	.62
1254	.32
1255	.62
1256	.35
1256½	.35
1257	.62
1258	.38
1259	.24
1260	.35
1261	.28
1262	.32
1263	.24
1264	.35
1265	.20
1266	.16
1266¼	.16
1267	.16
1268	.16
1268½	.16
1268¾	.35
1269	.28
1270	.28
1271	.28
1272	.28
1273	.28
1274	.28
1275	.28
1276	.28
1277	.28
1280	.16
1281	.16
1282	.16

No.	Price Each.
1283	.16
1284	.16
1285	.16
1290	.24
1295	.38
	Per doz.
1298	2.68
1299	3.70
1402	34.84
1402½	24.66
1403	38.25
1403½	28.35
1407	31.14
1407½	20.96
1408	34.55
1408½	24.66
1409	6.65
1430	50.92
1430½	38.86
1431	54.95
1431½	41.55
1432	59.00
1438	67.65
1440	86.00
1441	27.70
1443	37.70
1447	61.50
1450	47.60
1453	46.12
1454	61.64
1463, 1 key	10.18
1463, 2 kys	12.10
1464, 1 key	12.00
1464, 2 kys	14.00
1465, 1 key	13.88
1465, 2 kys	15.80
1480	92.50
1482	110.00
1484	68.75
1485	33.70
1486	84.50
	Per set.
1493	17.58
1493½	11.42
1495	19.40
	Per doz.
1541	31.15
1543	46.28
1553	46.90
1554	61.85
1660	53.00
1665	37.50
1666	44.50
1699	14.75
1700	29.60
1701	25.90
1702	22.20
1713	12.65
1755	62.90
01755	55.70
1755½	48.10
01755½	44.38
1756	66.60
01756	62.90
1756½	51.80
01756½	48.10
	Each.
1825	3.70
1826	4.70
1827	4.90
1830	3.40
1831	4.31
1832	4.31
1845	6.16
1846	8.00
1847	8.00
1850	4.90
1851	6.50
1852	6.50
	Per Doz
1900	24.66
1901	20.96
1901½	18.50
1902	18.90
1903	16.00
1913	9.25
1913½	8.30

No.	Price Per doz.
1925	4.56
1926	6.16
1627	7.40
1928	8.60
1935	10.90
1936	12.75
1937	12.00
1938	14.00
1942, 1 key	8.95
1942, 2 k..	11.40
1943, 1 key	10.75
1943, 2 k..	13.25
1944, 1 key	12.62
1944, 2 k..	15.10
1945, 1 key	10.48
1945, 2 k..	12.94
1946, 1 key	12.30
1946, 2 k..	14.80
1947, 1 key	14.18
1947, 2 k..	16.64
1953	34.50
1953½	25.25
1954	46.85
1954½	35.15
1955	47.46
01955	43.75
1955½	35.70
01955½	32.00
1956	50.92
01956	47.22
1956½	38.40
01956½	34.70
1997	10.72
1998	13.60
1999	11.90
2000	14.80
2001	10.16
2002	8.75
2003	10.72
2003½	9.38
2004	11.10
2005	9.86
2006	14.80
2007	12.35
2009	4.00
2009½	3.40
2010	4.95
2011	6.16
2012	4.05
2013	6.16
2014	5.55
2015	6.78
2016	5.55
2017	6.78
2018	5.55
2020	5.55
2022	6.16
2024	6.16
2026	12.94
2028	12.33
2030	.62
2030½	.62
2031	.62
2031½	.62
2032	.62
2032½	.62
2033	.62
2034	.62
2035	1.85
2037	7.40
2039	7.40
2040	1.25
2040½	1.25
2041	1.25
2041½	1.25
2042	1.25
2042½	1.25
2050	4.40
2051	5.40
2052	5.44
2053	6.90
2055	43.15
02055	39.45
2055¼	41.30
02055¼	37.60
2055½	32.66
02055½	29.00

No.	Price Per doz.
2055¾	30.82
02055¾	27.12
2056	46.85
02056	43.15
2056¼	43.15
02056¼	39.45
2056½	36.37
02056½	32.67
2056¾	34.52
02056¾	30.82
2060	9.86
2061	3.70
2061½	4.95
2062	4.30
2063, 1 key	7.40
2063, 2 k..	9.25
2063½, 1 k	6.16
2063½, 2 k	8.00
2064, 1 key	9.25
2064, 2 kys	11.10
2064½, 1 k	8.00
2064½, 2 k	9.86
2065, 1 key	11.10
2065, 2 kys	12.94
2065½, 1 k	9.86
2065½, 2 k	11.70
2069	23.74
2069½	21.25
2077	11.40
2077½	9.86
2092	22.80
	Per set.
2093	6.46
2093½	4.64
2095	7.10
	Per doz.
2096	10.50
2099	12.00
2099½	10.50
2500	5.36
2501	6.32
2502	7.72
2503	8.75
2504	11.12
2505	12.06
2510	6.40
2511	7.08
2512	7.85
2513	8.84
2514	11.40
2515	12.46
2520	9.25
2521	10.18
2522	12.06
2523	12.94
2542	18.50
2543	19.72
2580	11.70
2580½	13.56
2581	12.65
2581½	14.50
2582	14.50
2582½	16.35
2583	15.40
2583½	17.25
2584	17.25
2584½	19.10
2585	19.46
2585½	21.30
2586	20.96
2586½	22.80
2587	22.20
2587½	24.00
2590	25.90
2590½	27.75
2781	11.10
2781½	12.94
2782	13.56
2782½	15.40
2783	12.65
2783½	14.50
2784	15.40
2784½	17.25
2787	15.40
2787½	17.25
2788	18.20
2788½	20.00

No.	With No. 200 Brass Thumb Knob and Jap'd Plate. Per doz.	With No. 291 Brass Thumb Knob and Plate. Per doz.	With No. 293 Electro-plated, or No. 1299 Gold Bronze Thumb Knobs and Plates. Per doz.
696	$6.10	$6.65	$7.66
697	7.37	7.88	8.95
698	8.66	9.14	10.18
699	9.90	10.40	11.50

No.	With No. 295 Electro-plated, or No. 1298 Gold Bronze Thumb Knobs and Plates.
720	$5.20
721	5.63
722	6.14
723	6.55

IRON.

American Pig.—What we have for some months been looking forward to is right before us—a great scarcity of Pig Iron—an active demand absorbing the production, with the fall months near at hand, during which time the most active demand for Iron exists. The large stocks piled up by many works during the past two years of depression are gone. A gentleman deeply interested in Iron, after a searching examination of the Schuylkill and Lehigh regions, says they are cleaner swept of stocks than at any time in the past ten years. The interior demand of Pennsylvania is great, and the requirements of the West this year are beyond precedent. We do not indulge in prophecy, but, as a narrator of the market and reports connected with it, we think that higher prices appear inevitable, and there are those closely connected with the Iron trade who freely assert that $25 a ton will be paid this fall for No. 1 X prime Iron, simply because of its great scarcity. Some makers say they would be sorry to see such an advance, but the most conservative among them admit that even the usual demand thus early in the season cannot be supplied, with the prominent Lehigh and North River brands especially. Sales are reported of 200 tons No. 1 X Lehigh at $20. There are sales made quietly at higher prices, but only in small lots. We quote at unchanged figures: Foundry No. 1, $19 @ $20; Foundry No. 2, $17.50 @ $18; Gray Forge, $16.50.

Scotch Pig.—The demand is more active, and sales are reported of 100 tons Gartsherrie, 700 tons Coltness and 100 tons Carnbroe, all on private terms. Freights from Glasgow, as already noticed in our columns, have advanced, and are now quoted at 5/ @ 7/6, with a rising tendency. Thirty thousand tons Old Rails and 10,000 tons Scrap Iron are waiting shipment, and this, combined with large quantities of ore, has brought about the change in freights, from nothing a fortnight ago to the figures quoted above. As a consequence, the market for Scotch Pig is unsettled, and the tendency upward. We quote: Eglinton, $20; Coltness, $22; Gartsherrie, $21; Glengarnock, $20, and Carnbroe, $19.50.

Rails.—There is no dearth of inquiry for Steel Rails for deliveries which are impossible to meet. For Iron Rails the demand continues active, and sales are reported of 5000 to 6000 tons, Western delivery, on private terms. No sales of Steel are reported. We quote Steel, at tidewater, $45.50 @ $46, and Iron, at mill, $39 @ $40.

Old Rails.—No transactions are reported and we quote the same as last week, viz., $24 @ $25 here.

Scrap.—We quote No. 1 Wrought, from yard, $24.

METALS.

Copper.—No dealings worth mentioning have transpired in Copper during the week under review, and we maintain nominally the previous quotation of 16⅛¢ @ 16¼¢ for Lake Superior, with Baltimore worth about as much. There is nothing new from Europe and the West Coast by cable, but mail advices have reached us from London, dated July 19th, of which we reproduce the most important passage: "On Tuesday last, at the public sale of Wallaroo, the auctioneer stated that the total quantity of Wallaroo brand in stock in London consisted of 4761 tons, and that there remained 2406 tons in importers' hands, exclusive of the 1146 tons then about to be offered. Sundry questions were humorously put to the auctioneer, and after being politely answered by him, the bidding commenced at £56, and by dint of exertion was worked up to £58 10/, but as no buyer appeared disposed to advance beyond this figure, which was refused, being 30/ per ton below the reserved price, the whole quantity was then put up in one lot at £60 per ton. No bid, however, could be obtained, and consequently it had to be bought in, and thus ended the Wallaroo auction of July, 1879." The import into England during the first six months were 49,923 tons, against 40,261 and 43,916, and the export 31,215, against 30,007 and 26,753 tons in 1878 and 1877. The excess of import this year, it will be seen, is a notable one. The combination prices of Manufactured Copper are unchanged. We quote New Sheathing Copper, 22¢; Braziers', 24¢, and Bolts, 24¢; Bottoms, 26¢; American Yellow Sheathing Metal 13½¢; Yellow Metal Bolts, 20¢, and English Yellow Sheathing Metal, 12¢ @ 12¼¢, in bond.

Tin.—Dullness still reigns supreme, with no speculative improvement. We quote spot, Straits, large lots, 14½¢ @ 14⅝¢; English Refined, 14¾¢; ditto Common, 14¼¢ @ 14½¢, and Banca, 17½¢. The import since our last report has been 618 slabs Straits, which, we understand, had to be stored for want of purchasers. The London and Singapore markets are unchanged, yesterday's dispatch quoting Straits, £64. 10/, and English Common, £64. The Banca sale at Amsterdam has taken place, but no particulars of the result have been received by cable. Mail accounts have reached us from London to the 19th inst. We extract therefrom the ensuing: "So far as prices are concerned, this market has remained nearly stationary throughout the week. Sellers maintain their quotations with firmness, and the deliveries keep fairly good; nevertheless no particular advance is expected yet awhile, for supplies continue to come forward in excess of requirments, and therefore no opportunity is afforded for stocks to diminish. Until such a time as there is a great curtailment in production, any improvement that may occur in price cannot possibly be permanently maintained. The market for English shows little change, the demand keeping limited. In *Tin Plates* considerable business has been doing for delivery extending over the next three months, at low prices, probably based, to some extent, on the weakness during the last few weeks of the Liverpool market. The transactions here have, however, in their turn had the effect of strengthening the English market in the last few days, as makers are expecting purchases for American account to make their appearance, for the purpose of covering the sales spoken of in the above. The mail brings us from Liverpool, July 17, the following intelligence: "A meeting of Tin-Plate manufacturers was held at Swansea on Wednesday, when it was resolved 'that, considering the increase of consumption now going on in America, and the reduction of stocks in this country, this meeting considers that at present a further reduction of make is not necessary, but that the present restriction of four days' work per week should continue.' This negatives the resolution passed at Gloucester last week." From another source we receive the ensuing remarks: "Somewhat to most people's surprise, the makers have not yet agreed upon a concerted scheme of action. At the meetings last week the tone throughout was most despondent, as was evidenced by some makers, and those not the least sagacious, offering to book for the remaining months of 1879 at close to figures now prevailing. Tin, Charcoal and Coke are weak all round, and the only description that exhibits any strength is Charcoal Ternes." We quote the market at New York for ordinary brands, large lines, per box: Charcoal Bright, $5.87½ @ $6.25; ditto Ternes, $5.62½ @ $5.87½; Coke Tin, $5 @ $5.25, and ditto Ternes, $4.90 @ $5.12½.

Lead.—The market is very firm, 4¢ being bid for Common Domestic, while 4.10¢ is asked by speculative holders. Small outside sales, aggregating 50 to 100 tons, were made at 4.05¢. No transactions of magnitude are reported. London, July 19: "This metal remains very dull of sale, but owing to the unremunerative prices now ruling sellers show little inclination to give way in their quotations to buyers, unless the inquiries which come to hand be for large quantities. English pigs are selling at £13. 10/ to £13. 15/, and sheets at £14. 10/ per ton. There is no change in manufacturers' prices. We quote: Bar, 5¢; Pipe, 5½¢; Sheet, 6¢; Tin-Lined Pipe, 12¢; No. 1 Solder, 10¢; all less 10 % to the trade.

Spelter and Zinc.—Domestic Spelter is very firm at 4¾¢ @ 4⅞¢, the metal being exceedingly scarce. The Martindale Co. and the Carondelet Co., of St. Louis, are bankrupt, and the closing of their works—which produced together from 3600 to 4000 tons of Spelter—has reduced the output, and caused the firmness of prices. The stock here is very small. We quote: Refined, 8¢ @ 8¾¢; Silesian, 5⅝¢ @ 5¾¢, and Bergenport from Lehigh ore, 9¢. London, July 19: "There is no improvement in the general condition of this market, the demand being very limited, and prices a shade weaker. Good ordinary Silesian brands are quoted at £13. 17/6 @ £14, and English hard at about £11 per ton." We quote American *Sheet Zinc*, 6⅜¢.

Nickel.—This metal has remained in moderate request at the unaltered figure of $1.25 for Prime American.

Antimony—Moves off steadily in a jobbing way, but otherwise featureless. We quote the same as to brand, 11½¢ @ 12¢.

OLD METALS, PAPER STOCK, &c.

With the exception of a slight falling off in the price of Zinc, there is nothing new to report in the Old Metal market this week. The market is still very dull. In the Rag and Paper Stock market there is a slight improvement in the demand for White Linen and Cotton Rags, but prices are weak.

The purchasing prices offered by dealers for Old Metals are as follows:

Copper, heavy	per lb.	$0.12½	@	....
Copper Bottoms	"	.10	@	....
Yellow Metal	⅌ lb	.08	@	8½
Brass, heavy	"	.08	@	.08½
Brass, light	"	.07	@	....
Composition, heavy	"	.10	@	....
Lead, solid	"	.02¼	@	.02¾
Tea Lead	"	.02¼	@	.02⅜
Zinc	"	.02½	@	...
Pewter, No. 1	"	.09	@	..
Pewter, No. 2	"	.06	@	.07
Wrought Iron	pr. cwt	.65	@	....
Light do	"	.30	@	...
Stove Plate	"	30	@	...
Machinery do	"	.50	@	....

The prices current for Rags, &c., are as follows:

Canvas, Linen	per lb.	3 c.	@	3½ c
White Cotton, New	"	4½c.	@	..
" " No. 2	"	1¼c.	@	..
White, No. 1	"	3¾c.	@	4 ..
No. 2	"	2¼c.	@	2½c
Seconds	⅌ lb.	1½c.	@	..
Mixed, Woolen	"	2 c.	@	3 c.
Soft, do.	"	8½c.	@	c
Mixed Rags	"	2 c.	@	3 c.
Gunny bagging	"	3 c.	@	....
Jute butts	"	2¾c	@	..
Kentucky bagging	"	2⅞c.	@	..
Book Stock	"	2 c.	@	2½c.
Newspapers	"	1¼c.	@	1½c.
Waste Paper and Scraps	"	¾c.	@	..
Kentucky Bale Rope	"	4 c.	@	....
Tarred Shaking	"	1 c.	@	1¼c.
Grass Rope	"	2¼c.	@	2½c.

Messrs. Du Plaine & Co., Philadelphia, under date of July 22, quote the market prices for Old Metals as follows, and add: The demand for Old Metals still continues small, and many parties holding stock have been offering the same on 60 and 90 days' credit, doubtless fearing still lower prices. Old Lead is freely offered.

	Cents ⅌ lb.		
Heavy Old Copper	14	@	14½
Light Tinned Copper	12	@	....
Copper Bottoms	11	@	....
Locomotive Copper and Tin Bronze	12½	@	....
Heavy Red Brass Scrap	11	@	..
Light Red Brass Scrap	10½	@	..
Heavy Yellow Brass Scrap	9	@	...
Light Yellow Brass Scrap	7½	@	...
Old Lead Pipe	3¾	@	....
Old Junk Lead (melted in mass)	3¾	@	....
Tea Lead	3⅞	@	...
New Zinc Clippings	3½	@	...
Old Scrap Zinc	3⅜	@	...
Old Battery Zinc	3	@	....
Plumbers' Lead Joints	4	@	....
No. 1 Pewter	10	@	..
No. 2 Pewter	7	@	...
Old Type Metal	4	@	....
Red Brass Turnings	7	@	10
Yellow Brass Turnings	5	@	6
Stereotype or Electrotype Plates	4	@	..

IMPORTS

Of Hardware, Iron, Steel and Metals into the Port of New York, for the Week ending July 29, 1879:

Hardware.

Baldwin Bros. & Co.
Gun barrels, cs., 6
Boker Hermann & Co.
Hdw. and guns, pkgs., 48
Carey Samuel,
Grindstones, cks., 26
Charles R. P.
Grindstones, 1160
Churchill Willis
Machinery, cs., 22
Davis N. R. & Co.
Gun barrels, cs., 3
Degraw Aymer & Co.
Chains, csks., 2
Chain, lengths, 5
Folsom H. & D.
Arms, cs., 5
Mdse., cs., 4
Mdse., pkgs., 6
Friedmann & Lauterjung,
Mdse., cs., 4
Graef Cutlery Co.
Mdse., pkgs., 17
Grodman Louis,
Machinery, cs., 1
Hecht Bros.
Mdse., pkgs., 23
Hermann H. & Co.
Mdse., pkgs., 65
Howard, Sanger & Co.
Mdse., pkgs., 42
Livingston W. & F.
Grindstones, cks., 21
McAndrews J. C.
Emeryst'e, tons, 178
McCoy & Co.
Mdse., pkgs., 25
Merchants' Dispatch Co.
Hdw., pkgs., 2
Mitchell, Vance & Co.
Mdse., pkgs., 7
Moore's John P. Sons,
Arms, cs., 2
Morrison & Brown,
Hdw., parcels, 3
Nathan & Dreyfus,
Rail straighteners, 6
Noyes, Smith & Co.
Gun caps, cs., 2
Overton & Co.
Guns, cs., 3
Perkins & Co.
Coal, tons, 1134
Peters Bros.
Steelware, cs., 3
Schoverling, Daly & Gales,
Arms, cs., 7
Schuyler, Hartley & Graham,
Mdse., pkgs., 6
Scovill Mfg. Co.
Mdse, pkgs., 2
Struller Lau & Co.
Arms, cs., 8
Ter Kiule J.
Machinery, pkgs., 5
Tucker R. A. & Co.
Machinery, bxs., 2
Wetzlar M.
Mdse., pkgs., 2
Wiebusch & Hilger Hdw. Co.
Cutlery and hdw., pkgs., 10
Wilson D. H. & Co.
Gun caps, cs., 8
Witte John G. & Bros.
Knives, cs., 21
Wolff H. & Co.
Mdse., pkgs., 4
Wolff S. N. & Co.
Mdse., pkgs., 18
Order,
Arms, cs., 5
Coal, tons, 81
Files, cs., 3
Gal. wire, bdls., 113
Hdw., pkgs., 51

Iron.

Esculante P.
Old iron, cs., 1
Hollway Bros.
Ore, kilogs., 284,000
Lee Jas. & Co.
Pig, tons, 200
Marvel W. D.
Ore, tons, 390
McCoy & Co.
Bundles, 1284
Naylor & Co.
Bars, 5941
Bundles, 852
Spiegel, tons, 1016
Perkins, Livingston & Co.
Tons, 200
Kilogs., 350,000
Order,
Castings, cs., 37
Ore, kilogs., 284,000
Ore, tons, 6850
Rods, bdls., 36
Spiegel, tons, 450⅔

Steel.

Brown Wm.
Steel, bdls., 21
Steel, pkgs., 102
Naylor & Co.
Scrap, tons, 456
Prosser Thos. & Co.
Bars, 15
Order,
Cases, 13
Casks, 41
Rods, bdls., 64
Scrap, tons, 250

Metals.

American Meter Co.
6-inch plates, bxs., 125
Ti'ned sheets, cs., 22
Bruce & Cook,
Tin plates, bxs., 690
Byrne J. & Co.
Tin plates, bxs., 192
Dickerson & Co.
Tin plates, bxs., 1636
Great Western Dispatch Co.
Tin plates, bxs., 1138
Harley Geo. & Co.
Zinc, bales, 6
Keppelmann A.
Minium, cks., 100
Merchants' Bank of Canada,
Terne plates, 1155
Antimony, cs., 31
Tin plates, bxs., 827
Millard, Spencer & Co.
Tin plates, bxs., 165
Naylor & Co.
Tin plates, bxs., 12,537
Phelps, Dodge & Co.
Tin plates, bxs., 22,689
Black taggers, bxs., 100
Smith J., Lee & Co.
Minium, cks., 75
Tice & Lynch,
Platinum, cs., 1
Order,
Antimony, cks., 50
Lead, pigs, 432
Minium, bbls., 20
Spelter, cks., 1845
Tin plates, bxs., 11,063
Tin plates, cs., 13
Tin slabs, 1173

EXPORTS

Of Hardware, Iron, Machinery, Metals, &c., from the Port of New York, for the Week ending July 29, 1879:

Danish West Indies.

	Quan.	Value.
Pistols, cs	1	$45
Hdw., cs	23	201
Nails, kegs	20	55
Ptlm., gals	100	10
Glassware, cs.	7	52

Hamburg.

Hdw., cs	143	3,315
Silverware, cs	1	100
Mf. iron, pkgs	7	100
Belting, bls	2	850
Tinware, cs	12	287
Sew. mach., cs	859	15,396
Pltdware, cs	2	110
Cop. ore, cks.	223	3,600
Mach'y, cs	17	2,762

Bremen.

Ptlm., gals	768,196	57,379
Ag. imp., pkgs	283	7,270
Hdw., cs	8	358
Guns, cs	1	158
Lub. oil, bbls.	50	660
Mf. iron, pkgs	10	359
Car	1	800

Copenhagen.

Ag. imp., pkgs	13	200
Glassware, cs.	2	64
Slates, cs	85	343
Hdw., cs	1	78
Mach'y, cs	1	120

Rostock.

Ptlm., gals	73,113	5,000

Rusoer.

Ptlm., gals	140,977	12,000

Elsinore.

Ptlm., gals	149,233	10,074

Lubeck.

Ptlm., gals	131,195	11,475

Amsterdam.

Ptlm., gals	257,479	19,310

Antwerp.

Ptlm., gals	946,640	62,635
Rifles, cs	1	202
Mf. iron, pkgs.	34	598
Hdw., cs.	3	130
Belting, bale	1	320

Hull.

Pumps, pkgs.	3	125
Ox. zinc, bbls.	50	333
Hdw., cs	1	200

Limerick.

Ptlm., gals	121,818	18,247

Liverpool.

Hdw., pkgs	150	8,818
Mach'y, pkgs.	4	735
Fire engine	1	250
Pltdware, pgs	2	309
Sew. mach., cs	10	144
Pistols, case	1	800
Met. goods, cs	16	2,290
Belting, case	1	231
Cars	2	1,962

London.

Scales, pkgs	78	1,190
Slate, bxs	280	1,000
Mf. iron, pkgs	26	140
Sew. mach. cs	137	7,833
Mach'y, pkgs.	18	7,043
Hdw., pkgs	75	1,204
Ptlm., gals	251,948	18,415
Car wheels	100	461
Ox. iron, cks.	29	800
Ox. zinc, bbls.	50	350
Ag. imp., pkgs	26	378
Met. goods, cs	10	1,000

French West Indies.

Ptlm., gals	5,000	600
Ag. imp., pkgs	11	270

Barcelona.

Ptlm., gals	119,445	7,532

Alicante.

Ptlm., gals	108,800	9,248

British North American Colonies.

Coal, tons	2235	7,039
Hdw., cs	8	255
Belting, roll	1	39
Ag. imp., pkgs	2	75
Mf. iron, pkgs	1	37

British Guiana

Pumps, pkgs.	3000	300

Havre.

Ptlm., gals	302,055	16,990
Copper, csks.	300	56,250
Hdw., cs	1	138
Ag. imp., pkgs	2	50

Dunkirk.

Ptlm., gals	195,941	11,500

British West Indies.

Hdw., cs	63	1,025
Nails, kegs	290	894
Wire, pkgs	7	73
Glassware, cs.	50	531
Cartridges, cs	2	85
Sew. mach., cs	2	84
Ag. imp., pkgs	3	67
Ptlm., gals	49,789	5,051
Mf. iron, pkgs	16	262
Notions, cs	2	286
Refrigerator	1	105
Revolvers, cs.	1	654
Mach'y, cs	6	914
Tinware, cs	7	143

Cuba.

Ptlm., gals	4750	570
Nails, kegs	409	951
Coal, tons	20	133
Mach'y, pkgs.	33	562
Glassware, cs.	37	753
Nails, bxs	21	254
Mf. iron, pkgs	42	415
Nails, caks	6	116
Ag. imp., pkgs	14	545
Cop. tub., cs.	3	300
Hdw., cs	115	2,535
Sew. mach., cs	5	346
R.R. iron, bars	2000	804
Iron tubs	150	259
Grindstones	30	67
R.R. mtls. pgs.	5	395
Boilers	2	3,850
Pumps	2	35
Iron safe	1	150

Mexico.

	Quan.	Value.
Nails, kegs	74	$171
Hdw., cs	106	2,408
Firearms, cs.	27	7,604
Glassw're, cs.	45	618
Car wh'ls, pgs	33	859
Wire, reels	27	220
Pumps, pkgs.	5	459
Cutlery, pkgs	37	994
Mf. iron, pkgs	3	55
Per. caps, cs.	1	55
Sew. mach., cs	46	1,242
Cartridges, cs	13	401
Mach'y, pkgs.	29	775
Ptlm., gals	13,150	1,515
Glass, bxs	12	95
Belting, bales	2	96
Notions, cs	2	212

Glasgow.

Lub. oil, gals.	655	275
Hdw., cs	35	995
Mf. iron, pkgs	39	1,025
Sew. mach., cs	4	89
Plt'dware, cs.	3	232
I. hoops	2100	199
Mach'y, cs	4	240
Ox. zinc, bbls.	70	514
Bird cages, cs.	2	98
Belting, cs	4	534
Mach. oil, gals	700	400

Central America.

Cutlery, pkgs.	22	919
Ptlm., gals	7350	777
Glassware, cs.	16	184
Tinware, cs	28	184
Powder, lbs	850	256
Hdw., pkgs	69	713
Sew. mach. cs	19	444
Notions, cs	5	202
Nails, bxs	11	121
Mf. iron, pkgs	54	196
Belting, box	1	75

United States of Colombia.

Hdw., cs	152	5,005
Cutlery, cs	46	2,547
Iron, pkgs	178	223
Ptlm., gals	1660	206
Mach'y, pkgs.	193	5,668
Rifles, cs	81	13,906
Arms, cs	2	40
Powder, lbs	450	92
Revolvers, cs.	1	244
Glassw'e, cs	45	978
Mf. iron, pkgs	14	212
Notions, cs	6	330
Sew. mach., cs	87	2,806
Iron safe	1	190
Nails, kegs	10	27
S W appra, pgs	13	2,030
Ag. imp., pkgs	16	223
Cartridges, cs	602	15,254
P'lt'd g'ds, cs.	2	640
Pistols, cs	1	200

Van Dieman's Land.

Hdw., pkgs	124	1,405
Nails, kegs	203	660
Wire, pkgs	76	630
Ptlm., gals	19,200	2,200
Slates	20,000	475
Ag. imp., pkgs	103	3,595

Dutch East Indies.

Ptlm., gals	491,000	54,000
Coal, tons	207	570

Philippine Islands.

Ptlm., gals	157,000	16,000

Peru.

Ptlm., gals	16,165	1,759
Mach'y, pkgs.	324	39,375
Mf. iron, pkgs	516	1,056
Ag. imp. pkgs	115	3,631
Mach. oil, gals	2510	1,022
Pig iron, tons.	11	380
Coal, tons	290	1,000
Slv. pltdwre, cs	7	275
Sew. mach., cs	2	58
Cutlery, cs	5	135
Glassw're, pgs	4	38
Hdw., pkgs	103	2,268
Locomotive	1	4,775

Porto Rico.

Glassw'e, pkgs	31	369
Mf. iron, pkgs	86	732
Surv. insts, bxs	3	515
Mach'y, cs	3	63
Nails, kegs	36	107
Ptlm., gals	2800	268
Nails, kegs	27	90
Hdw., pkgs	35	786
Notions, cs	3	99
Sew. mach, cs	15	553
Press	1	200
Iron, bars	356	1,100
Ag. imp., pkgs	6	106
Tinware, cs	2	111

Alexandria.

Ptlm., gals	110,000	9,350

Brasil.

Hdw., pkgs	175	2,434
Glassw're, pgs	13	110
Ptlm., gals	138,300	14,061
Tinware, cs	1	35
Mach'y, pkgs.	4	427
Irons, cs	200	1,210
Sew. mach., cs	16	330

Trieste.

Ptlm., gals	520,067	40,619

Constantinople.

Ptlm., gals	145,000	18,850

Salonica.

Ptlm., gals	131,000	13,000

China.

Glassw're, pge	1	64
Hdw., pkgs	4	267
Sew. mach., cs	1	50

Fiume.

Ptlm., gals	354,448	35,000

Hayti.

Ptlm., gals	7050	659
Mach'y, cs	32	850
Powder, lbs.	300	92
Iron safe	1	300
Nails, kegs	5	39

Venezuela.

Ptlm., gals	3,840	364
Cutlery, cs	1	104
Sew. mach., cs	6	152

COAL.

The feature of the week was the Scranton auction sale of 50,000 tons, which took place yesterday noon. The attendance at the sale was very small, only 50 or 60 people being reported present. In the face of the very dull state of the trade for the past few weeks, the prices at the sale showed an advance of from 15 to 25 cents per ton. As might be expected, the trade generally dislike to say anything in regard to such an extraordinary performance, though the words "mock auction," "Peter Funk" were frequently heard during our trip through Trinity Building yesterday. We think that the general impression in the trade is that the whole affair was bogus, and bogus too in a manner so very transparent that no possible valuable result can accrue to the originators, except to make them the objects of a quiet laugh. A more injudicious thing can hardly be imagined. The effort to advance the price is so obvious that it can hardly have any other effect than to weaken the market and make an advance more difficult to obtain. During the afternoon little or no business was done, buyers and dealers seeming both disgusted. Prices remain precisely as they were before the sale, with the exception of the Philadelphia and Reading. This company on Tuesday issued the following circular for competing sea-borne Coal:

	Broken.	Egg.	Stove.	Chestnut.
Hard white ash	$2.75	$2.75	$2.90	$2.60
Free-burning white ash	2.50	2.60	2.90	2.60
North Franklin white ash	2.50	2.60	2.90	2.60
Schuylkill red ash	....	2.75	3.00	2.60
Shamokin	....	2.75	3.00	2.60
Lorberry	2.75	3.00	3.15	3.00
Lykens Valley vein, (Brookside)	3.50	3.50	3.50	3.25

Lump and Steamer, $2.75; Pea, $1.75 per ton.

To an outsider this seems a portion of the very transparent scheme to put up the price of Coal at the auction sale. The figures of the sale, for which we are indebted to Mr. Saward's kindness, are as follows:

AUCTION SALE OF 50,000 TONS OF SCRANTON COAL, JULY 29, 1879.

			Average.
15,000	tons of Grate sold at		$2.30
5,000	" Egg	"	2.45
25,000	" Stove	"	2.75
5,000	" Ch'tnut	"	2.56¾

The averages at previous sales have been:

	Stmr.	Grate.	Egg.	Stove.	Ch't.
June 25	....	$2.17¾	$2.20½	$2.56	$2.41½
May 28	2.09	2.09¾	2.10½	2.41	2.27½
April 30	2.02½	2.05	2.09½	2.39½	2.28½
April 9	2.03¾	2.06¼	2.09¾	2.48¾	2.27½
March 26.	2.17½	2.19¾	2.18	2.51¾	2.34
March 12	2.17½	2.25	2.26¾	2.65	....
Feb. 26	2.25	2.27	2.27½	2.64½	2.42¾

That this had little or no effect upon the market, is proved by the fact that none of the other companies made any change in prices. The Pennsylvania Coal Company issued no new circular, continuing their prices as before. The figures we give below are for Pittston Coal at Newburgh, with 50¢ per ton additional for delivery in New York:

Per ton of 2240 lbs.		Per ton of 2240 lbs.	
Lump	$2.25	Stove	$2.55
Steamer	2.25	No. 1 Chestnut	2.50
Grate	2.25	No. 2 "	2.15
Egg	2.30	Small Ch't or Pea.	1.70

Mr. Moulton, sales agent of the Delaware and Hudson Canal Company, in reply to a question, said that they would continue their prices without change until the 1st of August. They did not, apparently, think it worth while to take any notice of the sale. The Lehigh prices are also unchanged, and, so far as we could learn, no new circulars have been issued.

Old Company's Lehigh at Elizabethport is quoted:

Lump	$3.40	Egg	$3.00
Broken	3.00	Stove	2.90
Chestnut			2.65

The Lehigh Coals are all in fair demand except Chestnut, which, at this season of the year, drags somewhat. Freights are still without change. We quote $1 to Boston and 90¢ to Providence; other ports in about the usual scale in proportion.

PHILADELPHIA.

Office of *The Iron Age*, 220 South Fourth St.
PHILADELPHIA, July 29, 1879.

Pig Iron.—The market has been increasingly firm, and prices are again higher than on the date of our last report. It is difficult to quote exact figures, as the market has become very unsettled, some holders asking from $1 to $1.50 per ton advance on their last week's quotations. This condition of affairs has restricted business considerably, and consumers have hesitated to pay so large an advance as is generally demanded. The furnaces are well sold up, however, and sellers are quite indifferent about new business, unless at prices which fully meet their views. While it is pleasant to record such evidences of improvement in the Iron trade, it is almost questionable whether the advance is not too rapid to be entirely wholesome. Consumers have not, as yet, been able to get prices for their products in proportion to the advance in Pig Iron, labor and other items, and if the present ideas of furnacemen are realized, there must be a material advance in finished Iron, which can scarcely be obtained without considerable difficulty. Important contracts have been entered into on the basis of low cost of Iron, and serious complications may follow if the increase in values is too rapid. The condition of foreign markets, too, should not be overlooked. Imports of Old and New Rails are already several thousand tons per week, and if consumers are too closely pressed, there is no doubt that foreign Pig will soon be brought into competition with the domestic article. It is difficult to quote the market, but the following may be regarded as current prices to-day, the demand being much greater than the supply: No. 1 Foundry, $19.50 @ $21; No. 2 Foundry, $18 @ $18.50; Gray Forge, $17 @ $18; Mottled, $16 @ $16.50; White, $15 @ $15.50; Charcoal Iron, firmer at $26 @ $29.

Muck Bars—Are again firmer. Sales have been at about $33 at mill, but sellers are now holding for higher prices, say $33 @ $34.

Blooms—The market is gradually improving, and sellers ask outside rates, but we cannot hear of any material advance. We quote the market firm as follows: Sunken Scrap Blooms (2464 lb), $38 @ $39; Northern Ore Blooms (2240 lb), $33 @ $37; best quality Charcoal Billets (2240 lb), for wire and steel purposes, $58 @ $60; Bars do., $62.50 @ $65; Sheet Iron Blooms, cornered (2464 lb), $53 @ $55; Cold-blast Charcoal Plate Blooms, $50 @ $53; run-out Anthracite, $45 @ $47.50.

Structural Iron.—The demand is steadily increasing, and the amount of new business in sight is very large. There has been a good deal of inquiry from South America and the West Indies, but the amount definitely closed is unimportant, although prospects in that direction are quite encouraging. Meantime the home demand is sufficient to keep the mills fully employed at gradually improving prices, and business in all respects may be considered satisfactory, although prices as yet are not quite in proportion to the increase in cost of ma-

terial and other items. We quote: Angles, 2.3¢; Beams, 2.5¢ @ 2.6¢; Tees and Channels, 2.7¢. Market firm.

Plate and Tank Iron.—The market may again be quoted active, firm and somewhat higher on most descriptions of Plate Iron. Some heavy orders have been placed, especially of Tank Iron, which may be quoted full $3 higher within the past fortnight. The demand is of a general character, and consumers all seem to be in the market at once, and nearly all clamoring for prompt delivery. The mills are full of work, however, and in many instances are compelled to decline orders, having already as much work on hand as they care to take in the present unsettled condition of the Iron market. We again advance our quotations, at which manufacturers appear to get all the business they want. Skelp, 2.1¢ @ 2.2¢; Sheared do., 2.4¢ @ 2.5¢; Common Plate, 2.4 @ 2.5¢; Tank Iron, 2.5¢ @ 2.6¢; C. No. 1, 2.6¢ @ 2.7¢; C. H. No. 1, 2.9¢ @ 3¢; Flange Iron, 4¢ @ 4.2¢; Solid Fire-box and Best Bloom, 5.5¢ @ 6¢.

Sheet Iron.—The demand has been as active as before, and a general advance in prices has been made on all descriptions of Sheet Iron, including Galvanized. This change was intimated in our last report, and we change quotations accordingly, with prospects of further advance at an early date: Common Sheet, No. 20 to 23, 3.3¢ @ 3.4¢; No. 24 to 28, 3.5¢ @ 3.6¢; Best Refined Sheet, No. 25 to 28, 3.7¢ @ 3.8¢; No. 16 to 24, 3.5¢ @ 3.6¢; Best Bloom Sheets, No. 16 to 24, 5.6¢ @ 5.8¢; No. 25 to 28, 5.9¢ @ 6¢; Refined Plates or Blue Annealed, 5-16 to 16, 2.7¢ @ 2.9¢; Best Bloom, 5-16 to 16, 5.5¢ @ 5.7¢; A Patent Planished, 10½¢; B Patent Planished, 9½¢; Best Blooms, Galvanized, 40 % discount; second quality, 50 %.

Bar Iron.—The demand has steadily increased since last quotations. There have been heavy orders from the East by New York parties, who are anticipating higher prices. Considerable orders have been taken at an advance of 1-10¢ over the price current last week. The mills are all running full, and accept large orders only when subject to price current at time of delivery. The advance of about 12½ per cent. granted to the men has given much satisfaction, and as a natural consequence a greater amount of work has been turned out. The advance in the price of Bars, however, does not fully cover the advance in wages. It is a peculiar fact that with this immense demand for manufactured goods, such as Bar Iron, Nails, &c., the advance should be almost entirely on the raw material. The present quotation for Best Refined Bars is 2.1¢, but an advance of at least $3 per ton is considered imminent, and is, in fact, necessary, if the manufacturer is to have any margin to work upon.

Steel Rails.—There is no change in the general condition of the market, unless it may be that the demand is increasingly urgent. A large amount of business has been entered during the month, probably 60,000 to 75,000 tons in all, at prices varying from $43 @ $46 at mill, according to location of mill and time of delivery. The mills are crowded with work and manufacturers would be quite satisfied if the demand would fall off for a while, as it is impossible to meet deliveries as required. Prices are considered quite high enough, and there is no disposition among sellers to take advantage of the scarcity; although new customers may have to pay full prices, others are liberally dealt with, and if deliveries can be agreed upon, there is no difficulty in other respects. We quote $44 @ $46 at mill, with sales chiefly at outside figure for anything delivered before November.

Iron Rails.—We have again to report an active market, with sales to a considerable amount, at prices varying from $38.50 @ $46 at mill. There are several new inquiries, and appearances indicate that the present active demand will be maintained for some time to come. It is exceedingly difficult to place orders, however, as the mills are full of work, and, so far as we can learn, buyers of large lots, placed with Pennsylvania mills, would probably have to accept deliveries in 1880. Sales of foreign Rails have been made at about same figures at tide as obtained by mills in the interior. It is evident that a considerable amount of business from remote seaboard points will be placed. Sales of large lots for Galveston and other points have been made by Philadelphia firms, and it is likely that handling Foreign Rails will become a business of growing importance. Sales reported during the week amount to about 10,000 tons, at $38.50 @ $40 at mill; Foreign Rails about $40 at tide.

Old Rails.—There is no particular change to note in values; sales during the week have again been large, and prices have varied from $24.35 to arrive, to something over $25 for spot lots. The demand shows no abatement, and as immediate delivery is called for, it is certain that the late heavy purchases have already gone into consumption. Buyers are not specially anxious to anticipate their wants at these prices, although sales to arrive have been made of several thousand tons at $24.50. Spot lots are more easily disposed of, however, and for these we quote the market firm at $25.

Scrap Iron.—The market has slightly improved, though prices remain unaltered. We quote as before: Cast, $14.50 @ $15.50; Wrought, $24 @ $25.50.

Spikes—Are firm at outside figures, and heavy sales have been effected at 2.4¢ @ 2.5¢. The same may be said of Track Bolts.

Nails.—There is now a fair summer trade, though sales are slow. Prices about $2.25. Sales in some instances have been made at about 10¢ less. As the advance in raw material, labor and freight has increased the cost at least 25¢ a keg, it is unlikely that these figures will be quotations long.

PITTSBURGH.

Office of *The Iron Age*, 77 Fourth Avenue, PITTSBURGH, PA., July 29, 1879.

It is very evident that a better and more confident feeling is being developed in business of all kinds. This is demonstrated by the steady and increasing demand for all the leading Pittsburgh manufactures, as well as the fact that buyers, instead of adhering closely, as for several years past, to the hand-to mouth policy, are now willing, and in some cases anxious, to anticipate future wants. There have not been so many orders offering in Pittsburgh at any time since the panic as during the past few weeks. For iron products, including all kinds of railroad supplies, the demand is unusually heavy, owing to an apprehension, both on the part of jobbers and consumers, of a still higher range of values. Buyers who, until quite recently, purchased only for immediate use, are now in the market buying freely. There is a feeling of apprehension in some quarters that the improvement to which reference has been made, in the iron business in particular, will stimulate production, and no doubt many idle mills and furnaces will be started up; but in view of the light stocks and largely increased consumption, we do not think there is any immediate danger of a reaction. Another important and very encouraging feature lies in the fact that there is an absence of speculation. Business is being conducted on a healthy basis, and the situation in general is more encouraging in the West than it has been for a number of years.

Pig Iron.—While the volume of business the past week was not as large as that of the preceding one, the market continues strong and prices are still tending upward. The diminished volume of business is attributable to the extreme views of sellers, most of whom are asking a further advance; and as the mills generally have bought pretty freely, they are in condition to hold off for a time, although but few of them would, we apprehend, refuse to make additional purchases at the rates of a week ago. Commission men report that Pig Iron is scarce, and that many of the furnaces are sold ahead. Some of them have contracts that will absorb their entire product during the remainder of the year, and furnacemen generally are so confident in regard to the immediate future, that even if in condition to do so, they are very indifferent about making additional sales at current rates. Moreover, the scarcity and enhanced cost of Old Rails, to which reference was made in our last report, is not without its effect in strengthening the Pig-Iron market, as it has increased, and will continue to increase, the consumption of pig. It is worthy of notice that the cheaper grades of Pig Iron have advanced more than the better qualities, as there has been more inquiry for the former than the latter, which emanates largely from Old Rail consumers. The actual advance since the upward movement set in has been from $2 to $2.50 per ton. Forge Irons, which a few weeks ago were selling at $16 @ $16.50, are now held firmly at $18 @ 18.50, cash and four months. Better grades, which not long since were hard to sell at $18 @ $18.50, four months, are now stiff at $19.50 @ $20, with sales at $20 for future delivery. Bessemer Iron may be quoted at $21.50 @ $22, four months, with a sale of 1000 tons at $21.75, four months. Foundry Irons of all kinds are also from $1.50 to $2 per ton higher, with the exception of Charcoal, for which there does not appear to be much inquiry. A commission merchant, in referring to the situation, remarked that a few weeks ago it was difficult to get a buyer to even look at a sample of Pig Iron, while now they are ready to take all that they can get, if offered at a reasonable price.

Manufactured Iron.—There is no abatement in the demand, notwithstanding a further advance during the past week has been established, and our manufacturers, although not soliciting orders, have all they can do. Indeed, the policy of mill men here is to sell just as little as they can at present and refuse to make contracts for future delivery. From this it is very evident that they anticipate a still further improvement in prices. We now quote Merchant Bars at 1.90¢ @ 2¢, 60 days; Sheet on a basis of 3¢ for No. 24, and Tank and Plate Iron at 2.50¢.

Nails.—The advance is fully maintained, and we continue to quote at $2.35, 60 days, 2 per cent. off for cash, and abatement of 10¢ per keg on lots of 200 kegs and upward. At Wheeling the card remains unchanged at $2.10, with an abatement of 10¢ on 200-keg lots, although it is intimated that it would be difficult to obtain anything like a round lot there at these quotations. Nails must go up in sympathy with Iron; $2, the net price there, scarcely covers the actual cost of Nail Plate, the maker losing the cost of keg, cutting, packing, &c. Indeed, it is asserted by those who ought to know, that, with Bar Iron at 2¢, Nails should be $2.50 or $2.40, net.

Rails.—There is no abatement in the demand for Steel Rails; on the contrary, it appears to be increasing. Not only is the Edgar Thomson Company sold up for this year, but it is understood that they have orders for some 20,000 tons for 1880 delivery at full prices. Your correspondent was informed by a commission man yesterday, that he could place orders for 20,000 tons for delivery between now and the close of this year, if he could find any one willing or in condition to sell them. Old Iron Rails are very scarce, and in the absence of recent sales it is difficult to give quotations. They would bring $25, or possibly $26. There is not much inquiry for them, however, owing to the fact that they are higher relatively than Pig Iron, having advanced $6 @ $7 ℔ ton, whereas Pig Iron has only advanced $2 @ $2.50 ℔ ton.

Wrought Iron Pipe.—There is an increasing demand, and the market is firm in sympathy with Iron. Manufacturers who, a short time since, were giving 65 % off Gas and Steam Pipe, delivered, paying cost of transportation, are now firm at 65 % off, delivered free on cars in Pittsburgh. The probability is that a reduction in discounts will be made soon, in view of the enhanced cost of Pipe Iron, and this, to some extent, accounts for the increased demand, as buyers are anxious to anticipate future wants. Boiler Tubes are still quoted at 47½ @ 50 % off. Oil Tubing and Casing continue quiet, owing to the continued depressed condition of the oil business.

Steel.—The demand for all kinds of Merchant Steel continues quite brisk. The mills, as a rule, have about all they can do, and prices are firm, but without quotable change. The increased consumption of Iron does not affect the demand for Steel, and the indications are that business in both is destined to be active for some time to come.

Railroad Spikes.—The demand continues brisk, and prices are higher, with the mills all sold close up and some of them ahead. We quote $2.35, 30 days. There is an active demand for all kinds of railroad supplies.

Horse and Mule Shoes.—There is a fair business, and prices are firmer, but unchanged; 100-keg lots, $3.25 and $4.25, cash; larger lots at special rates.

Scrap.—There is an increasing demand; prices are firmer, and for some articles higher. Old Car Wheels may now be quoted at $20 @ $21, gross and stiff; Cast Borings may be quoted at $11 @ $11.50; Machinery Metal, $14.50 @ $15; No. 1 Wrought Scrap, $22.50 @ $23, net; Car Springs, $29 @ $30, net; Car Axles, $27 @ $28; Boiler Scrap, $22.50 @ $23.

Window Glass.—There is a lull in business at present, as there usually is at this time, but there is every indication of a good fall trade. Stocks are comparatively light; but few firms have anything like a full assortment, and factories in the West, with one or two exceptions, are all stopped, as is the custom during July and August. Discounts are unchanged; car-load lots, 75 %; smaller lots, 70 & 10 %.

Coke.—There is no falling off in the demand; on the contrary, it appears to be increasing, as might be expected in view of a number of furnaces starting up; hence, notwithstanding the large production and the increasing capacity, there is no accumulation, nor is it likely that there will be for some time to come. We continue to quote at $1.20 @ $1.30 ℔ ton, delivered free on cars at ovens.

Coal.—The Coal rise, which was so long and anxiously looked for, came last Saturday, and on Sunday about 8,500,000 bushels were started down the river, consigned mainly to Cincinnati and Louisville. A large proportion of that consigned to Louisville, will be taken further south, if there should be sufficient water in the Lower Ohio to let it out, which at present is doubtful. The effect of these liberal shipments will be to close up the Cincinnati and Louisville markets, and we should not be surprised if prices were to go back a little at those points. Not more than one-half the Coal here ready to move got out, as there was not water enough to take out that loaded in boats, and, if there had been, there were not enough towboats. Every towboat here that could handle a tow had one.

Petroleum.—There has been no perceptible change in the situation since the date of our last report. There is a very fair business both in crude and refined. This is evident from the heavy shipments of the former and large charters for the latter, but prices continue ruinously low.

CHATTANOOGA.

Office of *The Iron Age*, Market and 8th Sts., CHATTANOOGA, July 28, 1879.

The weather has been fairly pleasant during the week. General trade has been depressed on account of the fever excitement, though it has not as yet touched any manufacturing interest. The general feeling among mill and furnace men is better than has been observable since 1872, and all are selecting their orders instead of running, as heretofore, on such prices and for such parties as they could get. If we escape a serious epidemic, and we probably shall, this district will do a very large and profitable business the coming autumn. The week closes with cool, showery weather.

Pig Iron.—The demand steadily grows and is now beyond the means of the furnaces to supply. This state of things, continuing for three weeks past, has pushed prices up on several qualities, more especially in forge irons. We quote: Coke Irons—No. 1 Foundry, $17.50 @ $18.50; No. 2, $16 @ $17; Gray Forge, $14.50 @ $15.50; White and Mottled $13 @ $14. Hot-Blast Charcoal—No. 1 Foundry, extra, $20 @ $21; ditto, $19 @ $20; No. 2 Foundry, $16 @ $18; Gray Forge, $16 @ $18; White and Mottled, $16. Cold Blast Charcoal—Car Wheel Metal, $22.50 @ $27.50; do., Extra Standard, $24 @ $29.50; Forge, $17 @ $22.

Muck Bar, &c.—$27 @ $34; Old Rails, $20 @ $21; Wrought Scrap, $18 @ $20; Old Car Wheels, $18.50 @ $19. Old rails and wrought scrap are very stiff at quotations, with advancing tendencies.

Ores.—Brown Hematite, 50 to 56 %; per ton, $1.75 @ $2.25. Red Fossiliferous, 50 @ 56 %; per ton, $1.20 @ $1.60. The above prices for ores delivered in Chattanooga on cars, or on the wharf from flat boats.

Nails.—The demand is beyond the capacity of the mills, and prices are stiff, with a tendency to advance. We continue to quote at $2.25, usual discount on large lots.

Manufactured Iron.—The demand for every article in the list is good and improving. We are not yet prepared to advance quotations, but if present indications are reliable we shall be able to do so several points on most articles. We quote: Bars, 2¢; Railroad Spikes, 2½¢; Light Rail, 2¼¢; Track Bolts, 3¢; Trestle Bolts, 4¢.

Coke.—We quote 11¢ @ 15¢ per bushel for washed foundry. Furnace, full supply at $2 per ton, free on cars at Chattanooga or South Pittsburg.

Coal.—There is no change in the market nor in prices. We quote run of mine, free on cars in Chattanooga, at $1.25 @ $1.75 ℔ ton. Lump, as per quality, 10¢ @ 12¢ ℔ bushel.

Pig Lead—4½¢; Ingot Copper, 18¢.

Iron Rails.—Contrary to all expectations, the demand has been better than for several years at this season. The mill has refused to book orders for some 40,000 tons at offerings they would have accepted at the opening of the year. We quote at $38 @ $40 per ton, at the mill, and strong.

Steel Rails.—We quote at $47, at the mill, with short supply.

CLEVELAND.

CLEVELAND, July 27, 1879.

Iron Ore.—The trade in Ores from Lake Superior is quite limited. This is not owing to a falling off in the demand. On the contrary, the demand is much more active than at any time during the season. But few sales are reported, for the Ore is not to be had. The standard Ores of all the mines are sold up to their fullest capacity. Prices are firm, and are higher on the last sales than on those made earlier in the season. Everything in the Lake Superior country is being pushed to its utmost. The mines are endeavoring to increase their output. The result may be that a larger amount of Ore will be put upon the market this fall. It is reported on good authority that a prominent steel manufacturing company of Pennsylvania offered last week, for 20,000 tons of Ore, an advance of 75 to 85 cents a ton over contract prices paid in the spring. Besides the Bessemer Ores, which are entirely out of the market, the other specular, magnetic and hematite Ores are almost entirely sold up.

Pig Iron.—In sympathy with the general better feeling in all branches of the Iron trade, Pig Iron is higher. It is also in much better demand. Sales are larger and buyers are taking hold more readily.

Bar Iron.—The price of Manufactured Iron is higher. Mills are refusing to book orders ahead at present prices, or even at an advance of $1 or $2 a ton.

Scrap.—Old Rail Scrap is out of the market, owing to short supply, and prices are high, $25 ruling, and few to be had at that.

ST. LOUIS.

ST. LOUIS, MO., July 28, 1879.

The demand for Pig Iron continues good, with prices strong at present quotations. Buyers concede increased prices with less reluctance than formerly, and the outlook is for good business, and at possibly better figures. We quote as follows:

CHARCOAL HOT BLAST.	
Missouri	$20.00 @ ....
Southern	19.50 @ ....
Hanging Rock	22.00 @ ....
COKE AND COAL.	
Missouri	None offering
Southern, No. 1	19.50 @ ....
Ohio River, No. 1	20.00 @ ....
Jackson County, No. 1	20.00 @ ....
Hocking Valley, No. 1	20.00 @ ....
Anthracite	21.00 @ ....
No. 2 and Mill $1 @ $2 per ton less.	
COLD BLAST.	
Missouri	25.00 @ 30.00
Southern	25.00 @ 30.00
Ohio	30.00 @ 32.00
IRON ORE.	
Iron Mountain	5.50 @ ....
Southwest	4.75 @ ....
Ore for fix	6.50 @ ....
OLD RAILS AND CAR WHEELS.	
Rails	24.00 @ ....
Wheels	20.00 @ 21.00

BOSTON.

JULY 26.—*Pig Iron.*—We quote shipping port prices of Pig Iron to-day firm and tending upward at $19 @ $20 ℔ ton for No. 1 X; $17 @ $18 for No. 2 X; $16.50 @ $17.50 for Gray Forge, and $15.50 @ $16.50 for White and Mottled. Freights to Boston are easier, and we quote $1.25 @ $1.35 ℔ ton. Stocks of Pig Iron here are light, and small spot lots command $21.50 @ $23 ℔ ton for No. 1 X, and $20 @ $21 for No. 2 X. *Old Rails* continue to meet with an active inquiry and prices show a sharp upward tendency. The largely increased demand is caused by the fact that they are being rerolled by rail mills, and some of the latter made large contracts, with the expectation of using Old Rails; but, owing to the scarcity of the latter, have been obliged to substitute Pig Iron. There have been further sales of 500 tons at this point at $25, and some lots are held above that figure. In *Manufactured Iron* the rising tendency last noted has become still more pronounced, and we note sales of 100 tons Refined Iron at $44 80 at the mill. Some makes, however, have sold at $41. We quote Refined Iron $43.50 @ $44.80; Common, $39.20 @ $41. Small store lots now command $1.95 @ 2.10 ℔ cwt. Nails continue in good demand at unchanged rates, quoting $2.25 ℔ keg for ten-pennies. Sheet Iron continues to show an upward tendency in anticipation of the coming fall trade. Some of the galvanized iron manufacturers are also advancing their prices. Russia Iron is weaker, owing to the competition of importers. In the absence of any settled demand as yet, prices show a wide range, and we quote: 2¾¢ @ 3¼¢ for single Common, and 3¢ @ 3½¢ for double do.; 3½¢ @ 4¼¢ for Refined; 6¼¢ @ 7¢ for Galvanized, Nos. 14 to 20; 6¼¢ @ 9¢ for do., Nos. 21 to 28; 11¢ @ 12¢ for Russia, perfect, and ½¢ less for do. No. 1 stained. *Steel* is in fair demand at unchanged prices from the stores, and we continue to quote: American Tool Steel at 11½¢ @ 12½¢; English do. at 14¢ @ 15¢; American Spring Steel at 5¢ @ 6¢; English do. at 7¢ @ 8¢; Tire Steel at 3½¢ @ 4¢; Bessemer Machinery at 4¢ @ 5½¢; and Cast do. at 6¢. *Copper.*—Small lots from the Boston stores command 16¾¢ @ 17¢. There is no change in manufactures. We continue to quote New Sheathing at 22¢; Braziers at 24¢ @ 26¢, and Bolts at 24¢; Yellow Metal Sheathing sells at 13½¢ @ 14¢ for American and 12¢ for English in bond. *Lead* continues firm, and car-load lots command $4.25 in Boston to-day. Small store lots are firm at 4½¢ @ 5¢. Prices of manufactures have not yet been advanced, and we continue to quote: Lead Pipe, 5½¢; Tin-lined Pipe, 12¢; Bar Lead, 6¢; Sheet Lead, 6¢; Block-Tin Pipe, 30¢; all of these are subject to the usual trade, or 10 % discount. *Antimony* is still in light demand at 11¾¢ for large lots and 12¢ @ 13¢ for smaller parcels. *Spelter* is quiet and unchanged. Car-load lots are firm at $4.70 @ $4.75; and store lots at 5¢ @ 5¼¢. Sheet Zinc is quoted at 6½c @ 7¢, according to size of lots. *Tin* is still dull and weak, and prices are in buyers' favor. A North Carolina paper reports the striking of a vein of Tin ore in that State which may prove to be a valuable deposit and worth working. If such should be the case, it will be the first successful Tin mine in this country. We quote large lots of Straits 14¾¢ @ 15¢, and smaller lots as below. We quote: Straits, 15¢ @ 16¢; Banca, 18½¢ @ 19¢; English L. & F., 15½¢ @ 16¢. We quote Plate Charcoal I. C., $6.25 @ $6.75; Coke, $5.25 @ $5.75, and Charcoal Terne, $6 @ $7.50.—*Commercial Bulletin.*

CINCINNATI.

Messrs. E. L. HARPER & CO., under date of July 28, write as follows: The large demand noted in previous reports has been well sustained, while the supply of all grades is continually becoming lighter. Accurate information received from every furnace in Tennessee, Alabama and Georgia show that, with one exception, none of them have any iron on hand, and the majority have engagements made that will absorb all they can produce to January 1. In the exception noted, the stock on hand is small, and is not on the market at ruling rates. These conditions are not exceptional, the stocks being light in all districts tributary to the market. Under these circumstances prices are of course very firm; the advance already established being strongly maintained, it may fairly be said the tendency is toward still higher rates. The following quotations (4 mos.) show as nearly as possible the actual range of the market:

HOT-BLAST FOUNDRY.	
Hanging Rock C. C., No. 1	$21.50 @ 22.00
" C. C., No. 2	19.50 @ 20.00
Hanging Rock Coke and S. C., No. 1	18.00 @ 20.00
" S. C., No. 2	16.00 @ 18.00
Virginia Coke, No. 1	19.00 @ 20.00
" No. 2	18.50 @ 19.00
Shawnee S. C., No. 1	20.00 @ ....
" S. C., No. 2	17.00 @ 18.00
Hocking Valley S. C., No. 1	19.00 @ 20.00
" S. C., No. 2	17.00 @ 17.50
Southern Coke No. 1	20.50 @ 21.00
" No. 2	18.00 @ 19.00
FORGE IRONS.	
Hanging Rock, No. 1 C. C	19.00 @ 20.00
Hanging Rock, No 1 Coke	17.00 @ 17.50
Longdale, No. 1 Coke	18.50 @ 19.00
Ala. and Tenn. No. 1 C. C	18.50 @ 19.00
Cold-short, No. 1	16.50 @ 17.00
Old Rails, prime	cash, 23.00 @ 24.00
Southern Coke No. 1	18.50 @ 19.00
CAR WHEEL AND MALLEABLE.	
Hanging Rock C. B	28.00 @ 30.00
Southern and Western Brands	26.00 @ 28 00

BALTIMORE.

Mr. W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, reports us the following, under date of July 28: Business for the past week has been active, considering the season, with values ruling firm, and strong indications of further advance.

Refined Bar Iron, 1 to 6 by ¾ to 1	℔ lb	2 @ 2.10¢
" " 1 to 4½ by 1½ to 2	"	2 @ 2.1-10¢
" " ¾ to 2, Round and Square	"	2. @ 2.1-10¢
Hoop Iron, 1¼ wide and upward	"	2¾ @ 2¾¢
Band Iron, from 1¼ to 4 in. wide	"	2¾ @ 2¾¢
Horse-shoe Iron	"	3 @ 3¼¢
Norway Nail Rods	"	4¾ @ 5¼¢
Black Diamond Cast Steel	"	12½ @ 13 ¢
Machinery Steel	"	7 @ 8 ¢
Cast Spring Steel	"	4¾ @ 5¾ ¢
Homogeneous Steel Plate	"	5 @ 5¾¢
Common Horse Nails	"	10 @ 14 ¢
R. R. Spikes, 5½x9-16	"	2¼¢ @ 2¾¢
Perkins' Horse shoes, ℔ keg of 100 lbs		$3.37½
" Mule shoes		4.37½

	10	9	8	7	6
Putnam Horse Nails, ℔ lb	18	19	20	21	23¢
Globe Horse Nails, ℔ lb	18	19	20	21	23¢

Less list discount to the trade

Messrs. R. C. HOFFMAN & CO., Iron and Commission Merchants, No. 23 South Frederick street, report the Pig Iron market as follows, under date of July 21: Iron market unchanged and prices firm. We quote:

Baltimore Charcoal Wheel Iron	$26.00 @ 29.00
Virginia " "	27.00 @ 30.00
Anthracite No. 1	19.00 @ 21.00
" No. 2	18.00 @ 19.00
" No. 3	17.00 @ 18.00
" Mottled and White	15.00 @ 16.00
Charcoal, C. B. Blooms	49.00 @ 51.00
" Cut Billets	52.00 @ 55.00
Refined Blooms	45.00 @ 47.00

LOUISVILLE.

Messrs. GEO. H. HULL & Co., under date of July 26, write us as follows: The market is very stiff and prices are advancing on nearly all grades. We revise our quotations, on which the usual time, 4 months, is allowed.

FOUNDRY IRONS.	
No. 1 Hanging Rock, Charcoal	$21.50 @ 22.50
No. 2 " "	19.50 @ 20.00
No. 1 Southern, Charcoal	19.00 @ 19.50
No. 2 " "	18.50 @ 19.00
No. 1 Hanging Rock, Stonecoal and Coke	19.00 @ 19.50
No. 2 Hanging Rock, Stonecoal and Coke	18.50 @ 19.00
No. 1 Southern, Stonecoal and Coke	19.00 @ 19.50
No. 2 " "	18.00 @ 18.50
"American Scotch"	18.50 @ 19.00
Silver Gray	16.50 @ 17.50
MILL IRONS.	
No. 1 Charcoal, Cold-short and Neut'l.	17.00 @ 18.50
No. 1 Stonecoal and Coke, Cold-short and Neutral	17.00 @ 17.50
No. 2 Stonecoal and Coke, Cold-short and Neutral	16.50 @ 17.00
No. 1 Missouri and Indiana Red-short	20.50 @ 21.00
White and Mottled, Cold-short and Neutral	16.00 @ 16.50
CAR WHEEL AND MALLEABLE IRONS.	
Hanging Rock, Cold-blast	28.00 @ 32.00
Alabama and Georgia, Cold-blast	28.00 @ 30.00
Kentucky, Cold-blast	27.00 @ 30.00

W. B. BELKNAP & Co., Iron and Steel merchants, Nos. 113 and 115 West Main street, under date of July 28, write as follows: All signs point to the conclusion that the long period during which American ironmasters have been impoverishing themselves for the privilege of making iron is drawing to a close. Consumption is at last ahead of the capacity to supply it, and rolling mills are no longer in quest of customers for their product at less than cost. It is the buyer who now stands cap in hand with favors to ask. Mills are everywhere full of orders and seeking no more, except at an advance in rates. Here and there we hear of idle furnaces blowing in, and of old rolling mills undergoing repairs or extensions. Confidence seems at last restored. It is not easy at present to quote the market for Manufactured Iron, as there is great diver-

sity in prices among the mills, and prices are being irregularly advanced without any concert of action. Bar, Sheet and Hoop are all higher, and Nails in this market are held from 10 to 20 cents a keg above recent quotations. The action of the Pittsburgh mills in issuing a $2.35 card was a little premature, but it is believed that the Wheeling and lower river mills will soon come into line, and that Nails at present prices are good stock to hold.

RICHMOND.

Mr. ASA SNYDER, Iron Merchant and Furnace Agent, writes as follows under date of July 28: You will notice by the inclosed quotations a continued advance on most descriptions of iron. The market remains firm and promises an active fall business.

American Scotch Pig Iron	$....	@ 22.50
Anthracite, No. 1	20.50	@ 21.50
" No. 2	18.50	@ 19.50
" No. 3	17.50	@ 18.50
" Mottled	16.00	@ 17.00
Coke, No. 1	19.00	@ 20.00
" No. 2	18.00	@ 19.00
Va. Cold-blast Charcoal, Cold-short	23.00	@ 24.00
Va. " " Neutral	27.50	@ 28.50
Va. Warm-blast " Red-short	17.00	@ 18.00
Old Rails	21.00	@ 22.00
Wrought Scrap No. 1	18.00	@ 19.00
Cast " (machinery)	16.00	@ 17.00
Richmond Refined Bar Iron	2 2-10c.	@ 2.25

Freights to Philadelphia, $1.90 per ton of 2240 lbs. by sail.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(*From our Regular Correspondent.*)

LONDON, ENG., July 14, 1879.

THE QUARTERLY MEETINGS

of last week passed over quietly and without bringing about any declared changes in list prices. This being so, it scarcely appears probable that we shall witness any reduction during the present year. An alteration in an upward direction seems to be wholly out of the question, notwithstanding the accounts we receive from your side of the Atlantic speaking of firm markets and increased selling rates. So far as can be seen at present, there does not appear to be any hope of such a favorable movement in this country, in view of the exceedingly backward crops, and the unmistakable poverty of our agricultural districts. When we heard of your renewed prosperity some little time back, there was the hope that the wave would speed eastward, and that we should early feel its benign influence. Up to the present I do not think such has been the case, or that any merchant or manufacturer on this side can point to a single order which he can distinctly trace to the greater briskness of the manufacturers of the United States. At the same time it is not unlikely that the greater prosperity of your home trade may have the tendency to nullify the export efforts of your business men, and so stimulate the colonial and foreign demand for our productions by the lessened pressure of your competition. In reverting to the subject proper of the periodical meetings, I can only state that prices were unchanged at about the following: Cleveland plates, £4. 17/6; Staffordshire, Shropshire and Derbyshire pig, £4 @ £4. 5/ for all mine cold blast, and £3 @ £3. 5/ for hot blast; marked bars, £7. 10, with 12/6 extra for Lord Dudley's Round Oak brand; common bars, £5 @ £6. 10/, and medium, £6. 10/ @ £7; common sheets, £6. 10/ @ £7; galvanized sheet, £11 @ £12; hoops, £7, and plates, £7 @ £9. Hardwares are weak, and in some cases lower.

THE OFFICIAL RETURNS

of Mr. E. Waterhouse, the sworn accountant to the North of England Iron Trade Arbitration Board, for the three months ending May 31, have just been issued and show the following particulars, the net average selling price for the period being certified to be £5. 7/7½:

Sales During Three Months ending the 31st May, 1879.

Description.	Weight invoiced. T.	C.	Q.	L.	Percentage of total.	Aver. net price per ton. £	s.	d.
Rails	1,447	17	3	3	1 82	4	14	5.66
Plates	47,297	11	3	26	59.38	5	9	11.43
Bars	19,580	19	2	9	24.58	5	6	11 36
Angles	11,331	0	3	26	14.22	5	0	8.51
Total	79,657	10	1	8	100.00	£5	7	7.41

The total is higher than that for the previous quarter, although considerably below that for the same portion of 1878. The selling prices show an average reduction of 7/0½ on the preceding three months. Two or three firms which belonged to the association last year have since seceded and do not now make returns.

OUR EXPORTS TO THE UNITED STATES

during the month of June, as detailed in the official returns of the Board of Trade (which I briefly alluded to last week) are summarized as under:

	1879.	1878.
Hardware and cutlery	£22,331	£19,482
	Tons.	Tons.
Pig iron	5,295	1,851
Bars, angles, &c	350	309
Railroad iron	4,834	312
Iron hoops, sheets, &c	379	52
Tin plates	12,779	10,723
Cast or wrought iron	159	132
Old iron	3,795	54
Steel, unwrought	375	391
Machinery and millwork	£12,468	£8,008
	Cwts.	Cwts.
Tin, unwrought	3,196	441
Special return:	Tons.	Tons.
Iron rails	....	248
Steel rails	4,831	502

It is thus apparent that the increase of our business with you is largely confined to tin-plates and cutlery, the steel rails sent being no doubt in execution of the order given by Mr. Vanderbilt to the Sheffield, &c., firms.

THE TIN-PLATE MANUFACTURERS

are understood to have in contemplation a further reduction of the output, to the extent of about 12½ per cent. below the present rate of production. They have been led to this additional measure by reason of the fact that two or three makers have lately been offering and selling coke plates at figures from 1/ to 1/6 per box under the quotations fixed by the associated manufacturers. The effect of this has been to slightly demoralize the market, not only *per se*, but by leading the Liverpool exporters to believe that the association lacks cohesion and the power to enforce its decrees. With a view to effectually stopping this leakage, the makers—who number 75 or 76—met last week at Gloucester, and discussed the feasibility of forming a powerful syndicate, whose province it should be to insure the more necessitous producers against the temptations of the offers made to them, and to award these such amounts as should indemnify them against the current low prices. If acted upon, this resolution would doubtless render the arrangement very complete and effective. It was also proposed that official stores should be opened at Liverpool, and warrants issued in the same way as at Glasgow and Middlesborough in the iron trade. In neither case was a definite decision arrived at, but a further meeting has been convened to take such steps as may seem advisable to the Executive Committee. There is little or no doubt that both points will be affirmatively decided. In times of great activity, warrants will be found capital media for speculation, and in dull periods makers will justify over production by dispatching their surplus output to the stores. Consumers are scarcely likely to be seriously affected by either of these modes of procedure.

SCOTCH PIG IRON

has remained very quiet, and with very little prpspect of a change for the better, the production being still greatly in excess of the wants of the market. There are 90 furnaces blowing, and 279,652 tons in Connal's stores. Ballast pig is now quoted 37/6 per ton alongside ship in Clyde. The total increase in the shipments this year to date has been 53,874 tons—over 48,000 tons increase being in foreign consignments. John E. Swan & Bros. report a decrease of 987 tons in the imports of Middlesboro' pig last week. Writing from Glasgow on July 12th, James Watson & Co. said: "The Scotch pig iron market has been flat during the past week. On Monday business was done at 40/8 @ 40/4½, cash, and on the following day price receded from 40/2 @ 40/. On Wednesday market improved to 40/3½, while yesterday business was done at 40/5 @ 40/3½, cash. To-day business has been done at 40/4 @ 40/3, closing sellers at the latter quotation, buyers very near. The shipments last week were 8252 tons as compared with 7416 tons for the corresponding week of 1878." We quote:

	No. 1.	No. 3.
G. M. B., at Glasgow	41/3	39/9
Gartsherrie, "	45/	41/6
Coltness, "	50/6	43/
Summerlee, "	44/6	41/
Langloan, "	48/6	41/9
Carnbroe, "	43/9	41/6
Calder, at Port Dundas	46/	41/6
Glengarnock, at Ardrossan	43/6	41/9
Eglinton, "	41/3	40/3
Dalmellington, "	41/3	40/3
Shotts, at Leith	46/	43/

IN THE NORTH OF ENGLAND

steel making is the order of the day. Having become thoroughly convinced of the fact that iron has to give way, the live men of the North have thrown their old business overboard and are "going" for steel with all their energy and capital, instead of moving about like their ancient confreres of certain other districts, the names of which will doubtless occur to you. Speaking generally, it may be stated that there is a very general movement toward speedy steel working throughout the whole of Cleveland. In about two years from this time I anticipate three-fourths of the mills of the North of England will be running on steel alone. Just now the following prices, officially issued by Mr. Henry Simpson, secretary of the Middlesboro' Chamber of Commerce (and as yet unpublished) will probably interest you: "Cast iron girders, plain, per ton, £4. 7/6 @ £5. 15/; cast-iron chairs, £2. 13/ @ £3. 2/6; cast-iron pipes, 1½ inches to 2½ inches, £4. 15/ @ £5; 3 inches to 4 inches, £4. 3/ @ £4. 8; 5 inches to 8 inches, £4. 2/ @ £4. 5/; 10 inches to 16 inches, £4 @ £4. 2/6; 18 inches to 24 inches, £3. 18/ @ £4; wrought-iron girders, plain, £9. 10/ @ £13. *Cut Nails.*—Clasp, rose, clout, tip and sacking, per cwt., ¾-inch, 17/3; ⅞-inch, 15/9; 1 inch, 14/3; 1¼ inches, 11/9; 1½ to 1¾ inches, 10/3; 2 to 2¼ inches, 9/3; 2½ to 2¾ inches, 8/9; 3 to 6 inches, 8/3; above 6 inches, per cwt. extra, 1/. Joiners' brads, per cwt., 1 inch, 16/3; 1½ inches, 14/9; 1¼ inches, 13/9; 1½ to 1¾ inches, 12/3; 2 to 2¼ inches, 11/3; 2½ to 2¾ inches, 10/9; 3 inches and above, 10/3. Flooring brads, per cwt., 2 inches, 8/6; 2¼ inches, 8/3; 2½ inches and upward, 8/. Lath nails, per cwt., ¾ inch, 14/3; ⅞ inch, 12/3; 1 inch and above, 11/3. Colliery plate nails of first-class scrap warranted, per cwt., 2 to 2¼ inches, 10/3; 2½ to 2¾ inches, 9/9; 3 inches and upward, 9/3. Terms—Cash monthly, less five per cent. in 30 days from date of invoice on trucks at works." These prices may not be quite net for large lots in a line.

THE FERRIE FURNACE

is said to be likely to undergo a further important improvement shortly. Mr. Ferrie is understood to be experimenting with a view to placing his coke ovens near the top of the blast furnace. He will heat the ovens by means of the waste gases of the furnace, and also discharge the coke, while still red hot, into the furnace, thus effecting a further economy of fuel and something more than hitherto in point of quality of product of the furnace. In a short time additional details will no doubt be procurable.

THE LIVERPOOL MEETING

of the Iron and Steel Institute in September, will afford a ready rendezvous for such of your iron and steel masters as may desire to gain or give *viva voce* information of the world's progress in dephosphorization and general iron works' practice. Three weeks' absence from your Eastern States would give ten days holiday (or work) on this side. Several rather important *communiques* are to be laid before the meeting, which is pretty certain to be largely attended.

FROM SHEFFIELD

the current news is no better than that which has emanated from the same quarter any time these three months. The only oasis in the black and dreary desert appears to be the fact that John Brown & Co. have obtained a government order for the steel plates required for five new vessels, now in course of construction at Barrow-in-Furness. This contract has already enabled the company to restart their third blast furnace. The other two furnaces have, I believe, been running for the most part on spiegeleisen and ferromanganese work. The rail mills are busy, with the exception of Samuel Fox & Co.'s, and of the company just named. The crucible steel trade is very dull, and the de nand for most of the commoner brands is scarcely likely to improve, in the face of the cheapness and greater reliability of Bessemer and the new steels. The file and saw trades are lethargic; in both industries, indeed, a greater poverty of favors has rarely, if ever, been experienced. The manufacturers of hand-made files are said to contemplate the publication of a list of those who make files in that manner, leaving it to be inferred that the absentees from the list are users of machinery! For best cutlery there is a steady call, and some little increment of orders for the very common kinds are noted—the latter chiefly for Italy, Africa and Eastern Europe. Much of the common table cutlery is now almost wholly machine-made.

A MEMORIAL TO GEORGE STEPHENSON,

in the shape of a new hall, has been opened to-day at Chesterfield, with much ceremony, by the Duke of Devonshire and a large number of influential gentlemen. An exhibition of mechanical appliances is held in connection with the opening, and the ceremonies and show will be prolonged during the greater part of the present week. Stephenson lived near Chesterfield during the later years of his life, and constructed the railway (now the main line of the Midland system) which runs through the town, which is about 12 miles south of Sheffield.

STAFFORDSHIRE AND BIRMINGHAM

are not lively, especially as regards first processes, seeing that there are but 22 furnaces blowing out of the 150 erected. To this and other branches of the iron trade proper I have already alluded in speaking of the quarterly meetings. In most kinds of hardwares there is a fair business, a certain—albeit not large—proportion of which is on account of orders for your markets. At Willenhall, for instance, orders are said to have been received for padlocks of patterns which even the manufacturers had thought to be quite obsolete. This has been quite a boon to the lock makers there, who have also been comforted by a visit from Colonel Wrottesley (whose family has a Staffordshire connection), in connection with the recent famous lock controversy. The Colonel is said to have given a sort of general assurance that future war-office contracts (which go through himself, so far as Woolwich and local barracks are in question) shall, if possible, be placed with English in preference to American makers or importers of the latter goods. A further detailed allusion to this matter is likely to be made by Mr. Alexander Macdonald in the course of the next few days, although Heaven only knows what that great man is likely to gain by thrashing the dead horse. At several Wolverhampton and other factories imitations of American axes, &c., are said to be meeting with marked success in certain of the markets of South America, in Australia and the Pacific islands. It is not unlikely, I may mention, that British manufacturers will be at particular pains to make an imposing display at the Buenos Ayres Exhibition in 1880, which is now being advertised in the *Ironmonger* and other leading journals.

SOUTH WALES AND MONMOUTHSHIRE

are not as busy as regards iron making, but the production of steel and steel rails is fairly good and of tin plates large. From Cardiff last week the total iron shipments reached 857 tons only, made up of the undernoted separate items: 300 tons of rails to Halmstadt, by Messrs. Pyman, Watson & Co.; 153 tons of rails to Bahia, by Messrs. Bateman & Co.; 166 tons of rails to New York, by Mr. W. Y. Edwards; 230 tons of spiegel iron to New York; and 8 tons of bars to Cagliari, by Mr G. Strina. Mr. W. Y. Edwards also shipped 350 tons of tin plates to New York, and Messrs. Tennant & Co. 150 tons to St. Peterburg. In the vicinity of Swansea, around which town most of the copper smelting and tin-plate works are situated, there is a steady amount of work during the limited time of operation prescribed by the combination, and prices now average about: Charcoal, first quality, 21/6 @ 22/ per box; second quality, 20/ @ 21/; coke, first quality, 17/6 @ 18/6; second quality, 16/ @ 17/. At the works 1/ @ 1/6 less was charged for ordinary makes.

FOREIGN.

FRANCE.

(*Moniteur des Interets Materiels.*

PARIS, July 13, 1879.—*Metals.*—General business prospects are the reverse of cheerful in view of short crops and the necessity of again remitting abroad large amounts of money for food. *Copper.*—Excessive production everywhere keeps down values and we are again quite weak here. We quote Chili Bars, deliverable at Havre, 150; Common, 146.25; Ingots and Slabs, 151.50; Best Selected, 156, and pure Corocoro Ore, 155. Havre is nominal, Chili Bars at 143.50 @ 150. There is little doing at Marseilles, where they quote Spanish, in slabs, 140; Red Tokat, 145; sinall Refined Ingots, 157.50; Sheathing, 175; Bolts, 182.50, and Yellow Metal Sheathing, 180. *Tin.*—The great London-Holland Syndicate speculation seems at length to have collapsed, and all markets are drooping by degrees. Great weakness is noticeable here. We quote English, 166.25 @ 167.50, and all other sorts, 174. Marseilles is unaltered. They quote Banca, 180; Straits and Billiton, 170, and English, 175 francs the 100 kilos. *Lead.*—The general tendency is not a strong one in France. We quote here, Spanish and English Pig, 33.50, and all other sorts 34. At Havre, first fusion Spanish commands 37 @ 37.25. At Marseilles the market is in a drooping attitude. They quote first fusion, soft, 32; second ditto, 31.50; Sheet and Pipe, 36.50, and Shot, 37 francs. *Spelter* is again 50¢ lower in our own market. We quote Silesian at Havre, 37, and at Paris, 37.50. At Havre, best Silesian brands sell at 38.50 @ 39 francs, while Marseilles remains unaltered and quotes Old Remelted, 35 @ 40 francs, according to quality. *Iron.*—The improvement and increased activity in France suffered no change since our last report. Unfortunately, there is, as yet, no real stability in neighboring countries, and this lack of sympathy constitutes a weak point in our own position. At Paris, consumers, according to the magnitude of requirements, pay for Merchant Iron from 19.50 to 20 francs. First-class Coke Iron sells at 18 francs and Sheet Iron at 22. At the North, the masters of forges at Valenciennes have determined to make no abatement from their price list, as had, moreover, been foreseen, and the following are the rates thus upheld: Merchant Iron No. 3, of the first quality, 16.50 francs, with 1 franc difference between classes and 2 francs between the numbers; other goods in proportion. In the Haute-Marne a good many orders have dropped in for Moulage Pig Iron, and a steady run of commands is kept up in other articles in the line. *Coal.*—The market is still quite languid, and likely to remain so till we shall be approaching the end of the dull summer season, when it will be reasonable to expect a revival of some note, in view of the steady working off of stocks now going on in the Iron regions of France. The demand for domestic requirements is by that time also likely to revive, and the owners of Coal mines in France, at prevailing low prices, will then probably enter upon a more prosperous career.

BELGIUM.

(*Revue Universelle.*)

BRUSSELS, July 13, 1879.—*Iron.*—There is far more complaint of low prices in Belgium than there is of an insufficiency of work; at Charleroi and Liege the works have plenty of orders on hand. Prices are low. Thus, Pig Iron is offering at 4.90 francs, No. 1 Iron at 11.50 francs, and thick sheet Iron at 17 francs. The official report of Iron matters in the province of Liege during 1878 has just been published, and from it there will be perceived that there were 8 Iron mines being worked, being one less than in 1877, and that the aggregate amount of ore mined showed in point of value a decline of 10½ %. Out of 19 blast furnaces there were 11 still active, employing 11630 peratives, who on an average received 1066 francs wages. These blast furnaces have consumed 181,500 tons of Belgium ore, 206,000 tons of foreign ore, 204,000 tons Coke and 103,500 tons of Coal. The production has been 118,000 tons of affinage Pig Iron for Iron manufacture, worth 6,870,000 francs, 54,000 tons for Steel, worth 4,412,000 francs, and 340 tons Moulage, worth 40,000 francs. The interest of affinage production has been 18 %. Affinage sold at 58.27, against 62.74 in 1877, and ditto for Steel at 81.47 against 95.10 in 1877. *Coal.*—The market remains devoid of all interest. The Liege Coal mines have employed in 1878 some 22,415 miners, &c., being 800 less than in 1877. The production has been 3,481,000 tons, against 3,308,000 in 1877.

GERMANY.

(*Borsenhalle.*)

HAMBURG, July 12, 1879.—*Metals.*—A great many circumstances have combined this year to render the development of business on a normal basis difficult, but fortunately they are being removed by degrees, and the prospect now before the metal trade is more cheerful. Crops, although nothing to boast of, are tolerably good in Germany, more so than in surrounding countries, and the general trade outlook is not a bad one. This relates to metals in particular, stocks of which are heavy nowhere among us; nay, they may be called decidedly moderate, especially in consumers' hands. Prices are about as low as they were last year, and they cause nobody to hesitate who wants goods, for in any event they are not likely to decline materially from their present level. *Copper*—Lacks firmness, there being very little doing. At Berlin not a single transaction has been announced during the week, and prices remain nominally unaltered. Here there is a better tone than elsewhere. We quote: Drontheim, 68 marks the 50 kilos; Minnesota, 84; Hecla, 71, and English Tough Cake, 64 marks. *Tin.*—There has not been done a single thing, and it has therefore been impossible to test the market. Under these circumstances we abstain from making any quotations. *Lead.*—This metal has remained unaltered. We quote the same here as follows: English Pig, 15 @ 15.50 marks; ditto, Sheet, 16 @ 16.50; German Pig, 14 @ 14.50, and Spanish, 18.50. *Spelter*—Has been improving somewhat, and is now worth spot and to arrive in this city 14.50 @ 15 marks the 50 kilos.

HOLLAND.

(*Koch & Vlierboom.*)

ROTTERDAM, July 15, 1879.—*Tin.*—Early in the week the market has been heavy, and foreign Tin has declined somewhat, but at the reduction holders have shown little inclination to push sales, and this after a while has led to a slight recovery. Since then a better tone is again observable, a good many small operators for a rise having resumed purchases. Deliveries are satisfactory, but the arrivals do not seem to abate, causing stocks to again accumulate gradually, and the prospect, so far as prices are concerned, is by no means a cheerful one. Banca closes steady at 38.50 guilders the 50 kilos.; White Billiton and Australian are worth 37.75.

The Atlantic and Pacific Ship Canal.

The United States delegates to the Paris Congress on the Darien Ship Canal, Admiral Ammen and A. G. Menocal, have submitted to the Secretary of State their reports on the proceedings and the part which they took in them. The following is an abstract embodying the main conclusions reached by the eminent men who drew them up:

On the 16th of May the congress met in committees, and listened to a presentation, by Commander Selfridge, of plans and estimates based on the surveys of Lieut. Collins, United States Navy, over the Atrato-Napipi route. On the 17th, Admiral Ammen gave a *resumé* of the results of the different expeditions sent out by the United States government to survey routes through Tehuantepec, Nicaragua, Panama and Darien, leaving Mr. Menocal to make a technical explanation of the comparative merits of the plans based upon these surveys. On the afternoon of the same day, Lieut. Wyse, of the French Navy, presented his plan for the canal near the line of the Panama Railway. This plan was again taken up, and a further elaboration of it made by Lieuts. Wyse and Reclus, on the 17th. On the 20th another general session was held, when Commander Selfridge resumed his explanation concerning the Atrato-Napipi route, reaching favorable conclusions, which Admiral Ammen thought and said were not justified by the report of Lieut. Collins, on which they were based. Mr. Menocal was then invited to explain the surveys and plans of the Panama route, which he did with great clearness. He exposed the hopelessness of an attempt to make a ship canal route on that route *à niveau;* pointed out beyond controversy that, if so made, there would be a cataract of the river Chagres at Matachin of 42 feet, which, in periods of floods, would be 78 feet high; of a body of water that would be 36 feet deep, with a width of 1500 feet. The surprise and painful emotion on the part of those who had plans *à niveau*, and of their very many friends in attendance, can hardly be conceived. The fact stared them in the face that the plans which they had presented so confidently were absolutely impracticable. There was, however, after a day or so, a presentation of plans and estimates of the cost of execution, quite independent of a sufficient knowledge of the topography, upon which only could they properly be based. Mr. Menocal went on to explain how a water supply was obtainable, and that, owing to the floods of the Chagres River, it was impossible to lower the bottom of the canal below the hight of the aqueduct, as proposed by him, crossing the river at Matachin. When he had concluded his presentation of the Panama route, he stated that he would be happy to answer any questions which might be proposed. Not a question was asked. On the 21st, a general session occurred, and the report of the Committee on Tunneling was read. This committee was composed of the ablest engineers in Europe in that branch of engineering. It is sufficient to state, in brief, that it arrived at the impracticability, at whatever cost, of constructing a tunnel *à niveau;* that is to say, to secure navigable waters at the ocean level by the Panama route.

Admiral Ammen then draws the following conclusions from the proceedings and action of the congress:

1. That personal interests, arising from a concession for the construction of a canal, are unfavorable to a relative consideration of natural advantages as between two or more routes. That such personal interests did exist was quite apparent from first to last, and the "concession" was frequently partially discussed or alluded to, especially in the committees or sub-committees.

2. That the discussion in Paris has shown that hereafter, in the examination of the question, only the Nicaragua and Panama routes need critical examination, and that sufficient information existed as to all other routes.

3. That the canal *à niveau*, by the Isthmus of Panama, either with or without a tunnel, had been shown to be hopelessly impracticable, if considered as a commercial question.

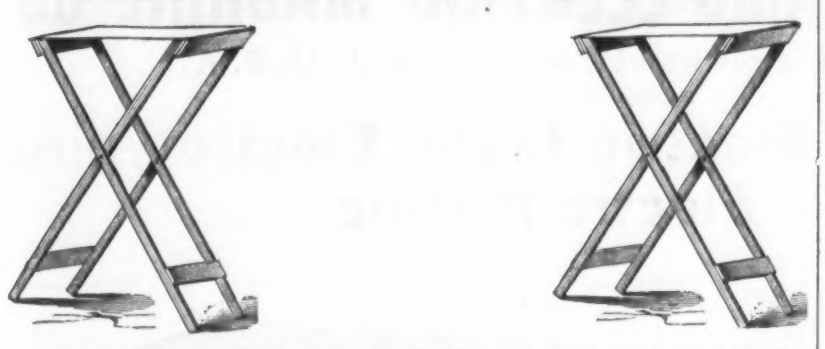
4. That a general and special knowledge now exists among European engineers relative to the subject of a ship canal across the American Continent, which did not exist prior to the assembly of the congress at Paris.

Admiral Ammen thinks it proper that the government of the United States should consider the question of the interoceanic ship canal as still undetermined, notwithstanding the report of its commission on the subject, which has received acceptance by the people of the United States and by able civil engineers, inasmuch as it has not received a criticism. Should this be regarded as advisable, it would seem necessary to form a commission of the ablest engineers of the United States Army, and to invite the ablest civil engineers of this country, and also invite all the governments who were represented at the Congress in Paris to send their engineers, all to join in full discussion and have equal powers, with the view of removing it from all extraneous influences of "concessions" or other objects than the consideration of the construction of a ship canal across this continent, capable of fulfilling the demands of the world's commerce under the most economic conditions.

The report of A. G. Menocal, the other delegate on behalf of the United States, is a very long and exhaustive *resumé* of the discussions of the congress, especially those concerning the two rival routes of Nicaragua and Panama. He concludes by saying that at the final meeting of the Technical Committee it was at last agreed, amid great confusion and excitement, by a vote of 16 yeas, 11 abstentions, 3 nays and 7 absentees, "that the committee, standing on a technical point of view, is of the opinion that a canal such as would satisfy the requirements of commerce is possible across the Isthmus of Panama, and recommend especially a canal at the level of the sea." A similar resolution was, on the following day, adopted by a general meeting of the congress. The vote was: Yeas, 72; nays, 8; absentees, 37, and abstentions, 16. Of the affirmative vote only 19 were engineers, and of this last number eight are at present, or have been, connected with the Suez Canal, five are not practical engineers, and only one has been in Central America. Of the five delegates of the French Society of Engineers, two voted no, and three absented themselves from the last two sessions of the committee and the congress. Mr. Menocal abstained from voting for the reason that the resolution is indefinite as to what system of canal should be finally adopted. He believes that a canal at the level of the sea as proposed is impracticable, at least in a commercial sense, but a canal with locks, *via* Panama, has been shown to be feasible by the United States surveying expedition of 1877, although more expensive than that *via* Nicaragua. By the proceedings of the congress, the remarkable condition is presented of engineers designing and estimating on the cost of such important work as the one under consideration, without a proper knowledge of the ground on which the works are to be constructed, which was generally regarded, as well as that of cost, to be a matter for after consideration. One point, however, has been gained by the discussion, viz., that the surveys made by the United States Government are now well known in Europe, and the relative merits of the different routes well appreciated by many engineers of experience and great reputation, as is shown by the report of the first sub-committee. It is expected, says Mr. Menocal, that the impracticable scheme proposed by Panama will soon be abandoned for want of supporters.

Patents Relating to the Metallurgy of Iron and Steel.—We have received from Mr. Jacob Reese, of Pittsburgh, a circular in which he announces that he is prepared to grant licenses on a large number of patents taken out by him for a great variety of subjects relating to the metallurgy of iron and steel. Prominent among them are the following relating to the Bessemer process: Patent No. 57,969, dated September 11, 1866, for the use of a lime lining. Patent No. 57,969, dated September 11, 1866, for use of a movable bottom. Patent No. 65,830, dated June 18, 1867, for the use of a basic bath. The use of metallic oxide, carbon, hydrocarbon, or a carbide of iron, when blown into the converter by means of the blast, is claimed in patent No. 55,710, date of June 19, 1866; No. 57,869, date of September 11, 1866; No. 65,830, date of June 18, 1867; No. 193,551, date of July 24, 1877. In the open-hearth steel process, Mr. Reese claims the use of an improved process for decarbonizing, desulphurizing, dephosphorizing, recarbonizing and further refining crude cast iron into cast steel, under patent No. 65,830, date June 18, 1867. For the use of lime lining he puts forth patent No. 57,969, date September 11, 1866; for metallic oxide, or basic bath, patent No. 65,830, date of June 18, 1867. Patent No. 65,830, June 18, 1867, relates to the use of blast in combination with the metallic oxide bath, and patent No. 57,969, September 11, 1866, to the use of a movable bottom, "in order to give free access to it, as well as to the furnace, for the necessary repairs."

LAWN STOOL.



This Lawn Stool is made of second growth White Ash, the strongest and most beautiful of our native woods. The seat is heavy cotton sail duck. The frame is put together with bolts and screws, and without glue, so that rain does not injure it. It shuts up more compactly and weighs less than any other 4-post stool in market. While it is much the cheapest, it is equal to the best in use. Dealers in such goods in all places will get them to fill the demand. They weigh two pounds each.

Price, $3 per Dozen.

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BACKUS Patent Bit Braces, Angular Borers Ratchet and Straight Extensions, &c.

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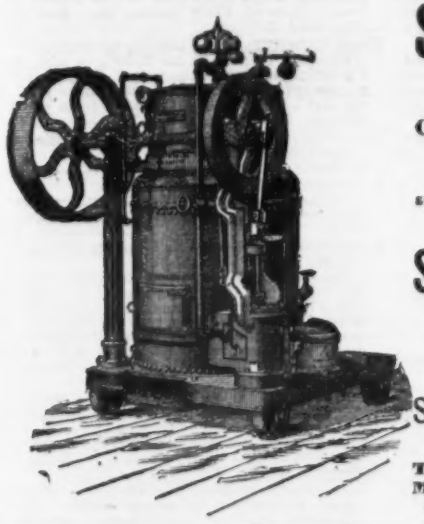

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Also sold by leading wholesale houses.

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PORTABLE DRILLS. Driven by power in any direction.
RADIAL DRILLS. Self-feed—Large Adjustable Box Table.
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LAMOILLE,
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All the above Stones are of good keen grit and *will not glaze.*

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GENUINE IMPROVED  AND MECHANICS

Wide Bar Full Length. Wide Bar Full Length.

Patent Screw Wrenches

UNDER PATENTS DATED

JUNE 26, 1866,
MARCH 23, 1869,
REISSUED 1870.

NOVEMBER 10, 1863,
FEBRUARY 23, 1864,
REISSUED JUNE 1, 1869,
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The back thrust when in use borne by the SHANK instead of the Handle.

None genuine unless stamped "L. COES & CO."

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THE LAST DISCOVERY IN ENAMELS.

Every desired quality secured in connection with a brilliant white finish, a thing never achieved before. Handsome as stone china. Admired universally, and to-day without a rival.
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This Pump is intended for sprinkling Lawns, Gardens or Streets in front of houses. Is invaluable for washing windows, carriages, sprinkling liquids on trees or shrubs, or extinguishing fires. Can be used by standing it in any common tub or bucket. (See cut.)

The Pump is a double force pump with two feet rubber hose, brass nozzle and extra sprinkler attached. It is double acting and will throw a continuous stream 50 to 60 feet.

Retail Price, each, $5.

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INVALUABLE FOR

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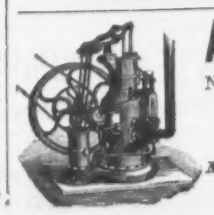

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The Thomas Refining Patent.

In addition to the two patents taken out by Mr. Sidney G. Thomas on his dephosphorizing process, a third, No. 217,962, was granted to him on the 29th of July, the application having been filed May 20. As the following copy of the specification just issued will show, it relates to a preliminary refining of pig, rich in phosphorus, previous to its conversion by the Bessemer process:

This invention relates to an improvement on my process for dephosphorizing phosphoretic pig iron for making steel. Previous to this invention I had dephosphorized the iron by melting it in a converter lined with calcareous or magnesian or like basic material, whereby a basic slag was produced in which the phosphorus was removed. The present invention consists in treating the iron to a refining process, preliminary to the dephosphorization in the converter, in the presence of basic material in such converter. In carrying out this process I refine the pig iron in a fixed refinery or vertical Bessemer converter, lined with fire brick or ganister or silica bricks, until about from five-tenths of 1 per cent. to seventy-five-one hundredths of 1 per cent. of silicon only is left in the metal. I then run it into an ordinary tipping converter lined with a calcareous material, preferably the basic bricks described by me in former specifications. I do not, however, permit the slag to run into the tipping converter, but stop the runner so as to divert the slag into a slag bogey. The amount of basic addition, namely, lime, or a mixture of from two to four parts of lime to one of iron ore added in the tipping converter, is regulated by the amount of phosphorus and silicon in the refined metal. The amount of addition which it is desirable to employ is about four or four and one-half times the weight of the silicon and phosphorus in the refined metal. The metal is then blown in the usual way in the basic-lined converter, with, if necessary, a slight "overblow." Having thus described the nature of my invention and the manner in which it may be employed, what I claim is: The process of dephosphorizing metal consists in first refining the metal in a fixed Bessemer converter or refiner, with a silicious or other lining, and subsequently running the metal into a Bessemer converter, with a calcareous basic lining and in the presence of a calcareous basic addition, substantially as specified.

Belgian and English Bells.

Only two metals are now used in large bells, tin and copper. The Belgians use 23 to 30 per cent. of tin; the English lean to more tin, 25 to 31 per cent. Tin makes the bell sound bright, but it also makes it brittle; and the reason why the English can afford to put in more of this brittle element is because they make their bells thicker, as a rule; and the reason why they are made thicker is, that instead of being merely chimed they are swung round on a wheel, which brings the hammer with great force upon the bell. If we treated the delicate Belgian bells in this rough fashion we should probably crack them—though if it were known that they would be swung, the Belgian makers could thicken them to order. They are not meant in Belgium to be whacked like big drums, but to be struck with hammers like a piano-forte. They resonate more easily than English bells, requiring a gentler stroke to elicit their full tone. In a word, the Belgian bell is a musical note, not a gong nor a drum. Secondly, the thickness and general proportions of the bell are of the utmost importance. Bells vary from one-fifteenth to one-twelfth of the diameter at the thickest part of the sound-bow, and the hight is commonly about 12 times the thickness. English bells are, roughly, as broad as they are long, if you measure diameter from outside rim to rim, and length from rim to top of cannon. But, in truth, the thickness of the bell at different levels is all important. The thickness near the top is as important as that of the sound-bow, and the diameter of the crown as critical a dimension as that of the rim. The deep, rich tone (in proportion to the size) of the smaller Belgian bells is probably largely due to the wide top-diameter, combined with the thinness in certain portions of the sides, half way down. The way in which altering the thickness affects the tone, and even the pitch of a bell, is shown by the fact that a sharp bell can be flattened by shaving off the metal inside above the sound-bow; and we are told that the beats have been destroyed by scooping the bell elsewhere until they disappeared at a certain point, but that on continuing to scoop they reappeared. All this shows how purely tentative and experimental is at present the art of bell-founding in England. In Belgium it is not scientific, but empirical—the accumulated experience of ages. A certain tact or rule of thumb takes the place of science. Rules there must be, founded on principles, but the masters cannot explain their secrets. They produce the work of art; others are left to discover the laws they have obeyed.

The Iron Age Directory

and Index to Advertisements.

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KEYSTONE SAW, TOOL, STEEL and FILE WORKS,

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MANUFACTURERS OF

SAWS OF ALL KINDS, FILES AND TOOLS, AND SPECIAL GOODS MADE FROM SHEET STEEL.

All goods stamped Henry Disston & Sons, and bearing our trade mark, are fully warranted.

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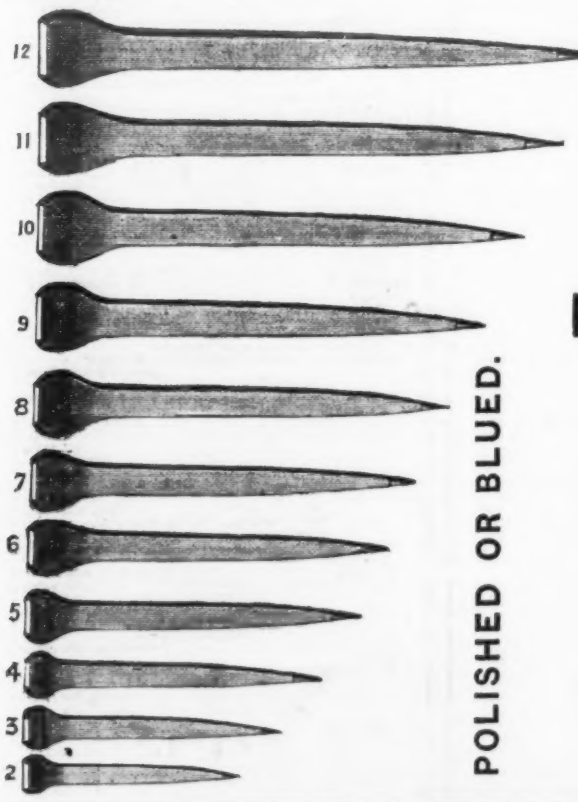

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Twisted, Bent and Drawn COLD.

Hot Forged and Cold Hammered Pointed,

Are the **only Nails in market** that are made in imitation of the **Hand Process.** **the uniformity of Machine** Nails and the **toughness** of those hammered by hand

HOT FORGED AND COLD HAMMERED POINTED NAILS

Are the Standard Nails,

and are **acknowledged to be the best in the market.** They are used by the **best shoers** in **New York, Brooklyn, Philadelphia, Chicago, Saint Louis, Milwaukee, Baltimore,** &c., and

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Kitchens, Laundries, &c., ventilated without draft. Durable, strong, without rivets or solder. Oiled for six months. Each one has storm cap. Retail price, size six inch diameter, $1.00 and upwards; apparatus with which any one can cut circles in glass, 15 cents each.

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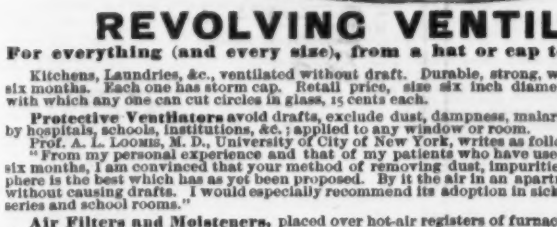
BRACHER VENTILATOR CO., No. 3 Park Row, New York.



Cut No. 173. Wrought Iron and Steel.

The Most Reliable Block Made.

Rope Strapped. Cut No. 83.

Cut No. 27. Iron-Strapped Stiff Swivel Hook.

PENFIELD BLOCK WORKS, Lockport, N. Y.,

MANUFACTURERS OF

TACKLE BLOCKS.

Sheaves, Bushings, Lignumvitæ Work, Ten-pin Balls, Mallets, Lock Faucets, Giant Car Pushers.

Send for Catalogue for 1879.

WM. H. HASKELL & CO.,

Pawtucket, R. I.

MANUFACTURERS OF

COACH SCREWS

(With Gimlet Points),

ALL KINDS OF

Machine and Plow Bolts,

FORGED SET SCREWS,

AND

TAP BOLTS.

HENRY B. NEWHALL 11 WARREN ST. N NEW YORK AGENT

Mica and Porcelain Materials.

THE CHESTER MICA AND PORCELAIN CO.

OFFER

Mica of the Best Quality,
Feldspar of highest Standard and Purity,
Quartz, the Finest, Whitest, Best.
Kaolin, Asbestos and Baryta.

Best Terms, Wholesale and Retail.

Address, CHESTER MICA AND PORCELAIN CO., 87 Liberty St. New York.

Bemis & Call Hardware & Tool Co.

This Wrench can be furnished with Briggs' Pat. Nut or Sleeve.

PATENT COMBINATION WRENCH.

These Wrenches are made from the best of Wrought Iron, with Steel Head and Jaw, case-hardened throughout, and not only combine all of the superior qualities of our Cylinder or Gas Pipe Wrenches, but also all requisite Combinations of a regular Nut Wrench, thus making a combination which has no equal

For Circulars and Price List, address

BEMIS & CALL HARDWARE & TOOL CO., Springfield, Mass.

Bergen Port Spelter

MINES: Lehigh Valley, Pa. WORKS & FURNACES Bergen Port, N. J.

The only Miners and Manufacturers of

PURE

LEHIGH SPELTER

From Lehigh Ore.

Especially adapted or

Cartridge Metal and German Silver.

Also manufacturers o

BERGEN PORT OXIDE ZINC.

Superior for LIQUID PAINT on accoun of its body and wearing properties.

F. OSGOOD & CO., Proprietors.

E. A. FISHER, Agent, 13 Burling Slip, N. Y.

A. B. GUNNISON,

MANUFACTURER OF

WOOD PUMPS

ERIE, PA.

ESTABLISHED, - 1856

Warranted Genuine

Cucumber Pumps & Pipe. Also Poplar Pumps, Lined Pumps, &c.

The Trade Supplied by

H. B. GRIFFING, 60 Cortlandt St., N. Y.

P. MANN, Washington, D. C.

SCOBIE, HARRISON & PARKER, 225 Liberty Street, Pittsburgh, Pa.

KNECHT & THOMAS, Winchester, Ind.

—AND BY—

A. B. GUNNISON

Manufacturer, ERIE, PA.

THE "EDDY" STRAIGHTWAY

VALVES.

ALSO,

FIRE HYDRANTS.

Axe, Hatchet, Powder and Brush Machinery.

MOHAWK & HUDSON MFG. CO.,

WATERFORD, N. Y.

GEO. M. EDDY & CO.,

Manufacturers of

Measuring Tapes

Of Cotton, Linen & Steel.

FOR ALL PURPOSES.

351 to 353 Classon Ave., Brooklyn, N. Y

New York Wholesale Prices, July 30, 1879.

HARDWARE.

Anvils.
Eagle Anvils (American).... ₩ lb 9c dis 20 %
Wright's.... ₩ lb 10¼c over 250 lbs 10½c
Armitage's Mouse Hole.... 9½ @ 9¾c
Trenton.... 10c

Augers and Bits.
Conn. Valley Mfg. Co.; Douglass Mfg. Co.; Humphreysville Mfg. Co; Ives; Beecher (French, Swift & Co); Griswold; Nobles Mfg. Co.; Fasson's Patent.... dis 50 @ 50&10 %
Cook's, Douglass Mfg. Co.... dis 50&5 %
Cook's, Ives'.... dis 45&10 %
Snell Mfg. Co.'s C. S. Augers.... dis 50&10 %
" " B. Machine.... dis 50&10 %
" " C. S. Bits.... dis 40 %
" " Jenning's Bits.... dis 35 %
Patent Solid Head.... dis 30 %
Russell Jennings' Auger, Dowel, Machine-Dowel and Hand-Rail Bits.... dis 10&10&10 %
Russell Jennings' Augers.... dis 16⅔&10&10&10 %
Russell Jennings' Car and Machine Bits, Boring-Machine and Millwrights' Augers, dis 25&10&10&10 %
Imitation Jenning's Bits.... dis 35@40 %
Ives' "Jennings" Bits.... dis 25&10 %
Lewis' Single Twist Bits.... dis 40 %
Andrews Bits.... dis 50 %
Griswold's Patent Bits.... dis 30 %
Expansive Bits, Clark's, small, $18; l'ge, $26.. dis 20@25 %
" " Ives.... $20 @ $30—dis 33⅓ %
" " Blake's.... $20—dis 40 %
" " Parmelee's.... $20 and $30.. dis 33⅓ %
Hollow Augers Ives'; French Swift & Co.... dis 40 %
" " Douglas.... dis 33⅓ %
" " Bonney's Adjust.... ₩ doz $48—dis 40 %
" " Stearns' Adjust., ₩ doz $48—dis 25&10 %
" " Ives' Expansive ...each $4.50—dis 40 %
" " Univ'sal Expansive, each $4.50—dis 20 %
Gimlet Bits.... $7.50 ₩ gross, dis 50 %
" Diamond.... ₩ doz $1.00 dis 25&10 %
" "Bee".... dis 45&10 %
Double Cut Gimlet Bits Shepardson's.... dis 40&10 %
" " Ct. Valley Mfg. Co... dis 30&10 %
" " Hartwell's.... dis 60&10&10 %
" " Douglass'.... dis 40 %
" " Ives'.... dis 50&10 %
Morse's Bit Stock Drill, List of May 15, '78.... dis 25 %
L'Hommedieu's Ship Augers.... dis 15 %
Watrous Ship Augers.... dis 15 %

Awl Hafts.
Sewing, Brass Ferrule.... $3.50 ₩ gross—dis 40&10 %
Peg, " .... 3.50 " dis 40&10 %
Patent Sewing, Short.... $1.00 ₩ doz—dis 40&10 %
" " Long.... $1.40 ₩ doz—dis 10 %
" Peg, Plain Top.... $10.00 ₩ gross—dis 40&10 %
" " Leather Top.... 12.00 " dis 40&10 %

Awls, Brad Sets, &c.
Awls Sewing, Common.... ₩ gross $1.35—dis 25 %
" Sewing, Best.... ₩ gross 1.40—dis 10 %
" Shouldered Peg.... ₩ gross 2.25—dis 15 %
" Patent Peg.... ₩ gross .60—dis 15 %
" Shouldered Brad.... ₩ gross $2.70—dis 25&10 %
" Handled Brad.... $7.00 ₩ gross—dis 25&10 %
" Handled Scratch.... $7.00 ₩ gross—dis 25&10 %
" Socket Scratch.... $1.00@$1.25 ₩ doz—net
Brad Sets, Aiken's.... ₩ doz $12.00—dis 40&10 %
" No. 42, $10.50; No. 43, $12.50.... dis 60&10 %
" Stanley's Excelsior, No. 1, $9.60... dis 25&10 %
" " No. 2, 4.80... dis 25&10 %
" " No. 3, 7.80... dis 25&10 %

Axes.	Light.	Med.	Heavy.	
M. H. Jones & Co.	$8.00	$8.50	$9.00	₩ doz net.
Bloods	14.00	14.50	15.00	dis 35 %

Axles.
Common (Guy C. Hotchkiss, Field & Co.).... ₩ lb 3½c
Solid Collar, Case Hardened, Chilled Box.... ₩ lb 8c
Axle Grease.—Frazer's.... ₩ lb 6c

Balances.
All Spring Balances.... dis 33⅓&40 %

Bells.
Hand, Light Brass.... dis 75&10 %
" Extra Heavy.... dis 50 %
" White Metal.... dis 70 %
" Silver Chime.... dis 25&10 %
" Globe (Cone's Patent).... dis 25&10 %
Gong, Abbe's.... dis 30&10 %
" Yankee.... dis 30&10 %
" Barton's.... dis 40&10 %
Crank, Taylor's.... dis 25&10 %
" Brook's.... dis 50 %
" Cone's.... dis 10 %
" Connel's.... dis 50&10 %
Lever, Sargent's, new list Dec., '78.... dis 60&10&10 %
" Taylor's Bronze or Plated Lever.... net
" " Japanned Lever.... dis 25&10 %
" Hart, Bliven & Mead Mfg. Co.... dis 50&10&2 %
" R. & E. M. Co.'s.... dis 50&10&10&2 %
Pull, Hart, Bliven & Mead.... dis 50&10&2 %
" Brook's.... dis 50&10&2 %
" Western.... dis 25&10 %
Call.... dis 25 %
Cow, Common Wrought.... dis 20&10 %
" Western.... dis 20&10 %
" " Sargent's new list.... dis 20&10 %
" Kentucky "Star".... dis 20&10 %
" " Sargent's new list.... dis 20&10 %
" Dodge's Genuine Kentucky, new list—

Nos.	0	1	1½	2	3	4	5	6	Hog	dis
	$12.00	10.00	9.00	8.00	6.00	5.00	3.50	2.50	5.00	60 %

" Yaw's Genuine.... dis 50 %
" Texas.... dis 50&10 %
" Wilson's Moore's.... dis 40 %

Bellows.
Blacksmiths', Common.... dis 45 %
" Extra and Pittsburgh Pattern.... dis 20 %
Moulders.... dis 25 %
Hand Bellows.... dis 25 %

Belting, Rubber.
N. Y. Belting and Packing Co.... new list net

Bit Holders.
Extension, Barber's.... ₩ doz $15.00—dis 40&5 %
" Ives'.... ₩ doz $15.00—dis 40 %
Diagonal.... ₩ doz $24.00—dis 40 %
Angular.... ₩ doz $24.00—dis 40 %
Blind Adjusters.—Domestic.... ₩ doz $3.00, dis 20 %
Blind Fasteners.—Mackrell's.... dis 30 %
Van Sand's.... No. 2000, per gross, $9.00 net
" old pattern.... ₩ gross, $7.50 net
Washburn's Patent.... ₩ gross $14.00, dis 40 %
Merriman's.... new list net
Mackrell's.... ₩ doz. $0.65, dis. 10 %

Blind Staples.
Boardman's Patent, ⅜ in. and larger.... ₩ lb 15c net
" ⅝ in.... ₩ lb 20c dis net

Blocks.—Burr & Co.... dis 25 %
Differential Pulley Blocks.... dis 20 %
Penfield Block Works, Rope and Iron Strap'd.. dis 45 %
" " " Wrot. Iron Com. bushed. dis 35 %
" " " " " all steel roll'r. dis 20 %
" " " Sheaves " " dis 35 %
Stanley R. & L. Co., Rope and Iron Strap'd. dis 35&10 %

Bolts.
Cast Iron Barrel, Shutter, &c.... dis 70&10&10 %
Cast Iron Chain (Sargent's list).... dis 70&10&10 %
Bush's Lever and Chain Bolts.... dis 40, 10&10 %
Wrought Iron Barrel.... dis 60&10 %
" " Square.... dis 60&10 %
" " Shutter (Stanley's list).... dis 50 %
" " " (Sargent's list).... dis 60&10 %
" " Sunk Flush, Sargent's.... dis 66⅔&10 %
" " " Stanley's.... dis 25&10 %
" " B.K.Flush, Com'n. Stanley's.. dis 60&7½ %
" " " Ex. Heavy, " dis 40&10 %
" " Plated Knob & Slide Flush " dis 50&10 %
Carriage and Tire, Common.... dis 75&5 % cash
" " Norway Iron.... dis 70 %
" " Philadelphia.... dis 70 %
" " Coleman.... dis 60&10 @ 60&20 %
" " Shelton's.... (old list) dis 70&5 %
R. B. & W. Carriage (old list).... dis 70&5 %
Tire, Am. Screw Co.'s, Phila.... dis 70&5 @ 70&10 %
" "Bay State.... dis 75&10 @ 80 %
" R. B. & W.... dis 70&10&5 %
Star (Phila).... dis 60&10@60&20 %
Stove—American Screw Co.'s.... dis 60 %
" R. B. & W.... dis 60 %
Plow.... dis 60&10 %
" R. B. & W.... dis 50 %
Machine.... dis 70&5 %
Bolt Ends.... dis 60 %
Borax.... 10⅝@11⅛c ₩ lb net

Boring Machines.	Upright.	Angular.	
First quality, no Augers	$5.00	$6.75	dis 45&10 %
" with Augers	8.50	10.25	dis 45&10 %
Snell's, no Augers	2.75	3.50	net.
Phillips' with Augers		1.00	dis 40 %

Braces.—Barber's Patent.... dis 40&5 %
O. S. Backus.... dis 50&10 %
Wilson Mfg. Co.... dis 10 %
Spofford's Patent.... dis 50&5 @ 50&10 %
Noble's Patent.... dis 40&5 %
Ives' Patent Braces.... dis 55 %
Common Ball (American).... dis 45 %
Brackets.—Shelf (Sargent's).... dis 66⅔&10 %
Swing (T. & S. Mfg. Co.).... dis 33⅓ %
Bright Wire Goods.... dis 70&10 %
Bull Rings.—Union Nut Co.... dis 50&20 %
Sargent's.... dis 70&10 %
Hotchkiss'.... low list dis 30 %
Humason Beckley & Co.'s (low list).... dis 60&10 %

Butts.
Wrought Brass.... dis 55 %
Cast Brass, Tiebout's.... dis 40&10 %
" Corbin's.... dis 50&10 %

COMMON CAST, NOT DRILLED.
Fast Joint, Narrow
" Broad
Loose Joint, Narrow and Broad
DRILLED AND WIRED.
Fast Joint, Narrow
" Broad
Loose Joint
Japanned
with Acorns
Parliament Butts
Mayer's Hinges
Loose Pin no Acorn
Acorns
" Japanned
" Plated Tips
Union Mfg. Co.'s Fancy Butts—
Figured Enameled Loose Joint
Boston Finish, Plain
" " with Iron Acorns
" " with Silvered Acorns
(See Trade Report.)

WROUGHT IRON.
Fast Joint Narrow; Lt. Narrow; Broad; Loose Joint, Broad; Table Butts, Back Flaps, &c.; Inside Blind, Regular; " Light; Loose Pin, Wrt.... dis 60 & 10 %
Spring Hinges
American Spiral Spring Butt Co., Jap'd.... dis 25 %
" " " " Fancy.... dis 10 %
Geer's Single and Double Acting.... dis 25 %
Sabin Mfg. Co.'s Double Acting.... dis 35 %
Centennial, Japanned.... dis 25 %
" Ornamental.... dis 20 %
Union Spring Hinge Co.'s.... dis 25 %
American Spring Hinge Co.'s.... dis 25 %
Union Mfg. Co.... dis 25 %
Bommer's.... dis 25 %
Blind Butts, Parker.... dis 75&10 %
" Palmer.... dis 40&10&10&2 %
" Seymour.... dis 70&10 %
" Shepard.... dis 75&10 %
" Lull & Porter.... dis 66⅔&10 %
" Nicholson.... dis 45&10 %
" Huffer.... dis 50@10 %
" Clark's, Nos. 1, 3, 5, 40 and 45.... dis 75&10 %
" Buffalo "Noiseless".... dis 75&10 %
" Sargent's.... dis 80&10 %

Bow Pins.
Hotchkiss'.... low list dis 10 %
Humason, Beckley & Co.'s (low list).... dis 60&10 %
Sargent & Co's.... $19.70 and $21.40. dis 70&10 %

Butchers' Cleavers.
Humason & Beckley Mfg. Co.... dis 25 %
Bradley's.... dis 25 %
Beatty's.... dis 35 %

1	2	3	4	5	6	7	8
$16.50	19.00	21.50	24.00	27.00	30.00	33.50	36.50

Hart Mfg. Co.... dis 50&10&2 %

0	1	2	3	4	5	6
$20.00	26.00	29.50	33.00	37.00	41.50	45.00

Can Openers.
Messenger's Comet.... ₩ doz $3.00, dis 25 %
American.... ₩ doz $2.00, dis 75 %
Duplex.... ₩ doz 25c, dis 15@20 %
Lyman's.... ₩ doz $3.75, dis 20 %
Poole.... ₩ doz $3.75, dis 40 %
No. 4, French.... ₩ doz $2.25, dis 60 %
No. 5, Iron Handle.... ₩ gross $6.00 net
Eureka.... ₩ doz $2.50, dis 10 %
Sardine Scissors.... ₩ doz $7.00, dis 55 %
Star.... ₩ doz $5.00, dis 25 %

Caps—Percussion, ₩ 1000.
G. D. & S. B.... 30c
Double Waterproof, in 1-10's.... $1.20
Colt's Pistol, ".... 65c
Musket, 1-10 ".... 60c
F. L.... 50c
E. B. 1-10, Trimmed.... 65c
E. B. 1-10 Ground Edge.... 70c } dis 10&5 %
Cartridges.—Metallic.... dis 60&10&5 %
Cards.—Horse and Curry.... dis 33⅓&10 %
Cotton.... dis 25&10 %
Wool.... dis 25&10 %
Car Pusher.—"Giant".... $6.25 each, dis 20 %
Carpet Stretchers.
Cast Steel, Polished.... ₩ doz $5.00, dis 30 %
" Iron Steel Points.... ₩ doz $2.00, dis 60 %

Casters.
Bed.... dis 55 %
Plate and Shallow Socket.... dis 55 %
Deep Socket.... dis 40 %

Cattle Leaders.
Hotchkiss' Sons'.... dis 10&10 %
Humason, Beckley & Co.'s (low list).... dis 60&10 %
Sargent's.... dis 70&10 %

Chain.
Trace, 6½-1-2.... ₩ pair 44 @ 45c
" 6½-10-3.... ₩ pair 42 @ 43c
" 7-10-2.... ₩ pair 49 @ 50c
German Halter Chain.... dis 40&10 %
" Coil.... dis 40&10 %
Oneida Halter Chain.... dis 40 %
Galvanized Pump Chain.... ₩ lb 10½c dis 20 %
Jack Chain, Iron.... dis 60&10&10 %
" Brass.... dis 55&10 %

Chalk.
White.... ₩ gross 55c net
Red.... ₩ gross 75c net
Blue.... ₩ gross 90c net
White Crayons.... ₩ gross 14c net

Chisels.
Socket Framing, Crossman.... dis 70 & 5 %
" " Buck Bros.... new list. dis 25 %
" " Merrill.... dis 70 %
" " Witherby Tool Co.... dis 70 %
" " Douglass'.... dis 70 %
" Firmers, Crossman.... dis 70&5 %
" " Buck Bros.... new list. dis 25 %
" " Merrill.... dis 70 %
" " Witherby Tool Co.... dis 70 %
" " Douglass'.... dis 70&5 %
" Corner.... dis 65@70 %
Tanged Firmers extra.... dis 40 %
" " Butcher's.... $5.00 @ $5.25 to £
" " Spear & Jackson's.... 5.00 to £
" " Buck Bros (Shank).... 5.00 to £

Clamps.
Iron, Providence Tool Co.'s, Wrt. Iron.... dis 25 %
" Adjustable, Gray's.... dis 20 %
" " Lambert's.... dis 20 %
" " Snow's.... dis 40&5 %
" " Hammer's.... dis 15 %
" " Stearns'.... dis 15&10 %
" Cabinet, Sargent's.... dis 60&10&10 %
" Carriage Makers', Sargent's.... dis 60&10&10 %
" Cord and Tape (T. & S. Mfg. Co.).... dis 30 %

Clips, Axle.
Norway or Best.... dis 60&10 %
Superior.... dis 65&10 %
Cockeyes.... 1¼ in., 28c.; 1⅜ inch, 33c.; 1⅝ in., 37c, net
Cocks, Brass.
Racking, new list.... dis 50 %
Globe, ".... dis 50 %
Plain Bibbs, ".... dis 50 %
Ale and Beer, new list.... dis 50 %

Coffee Mills.
Board and Box.... dis 25 %
Increase Wilson's.... net
Selsor's Pat.... $9.50, $10.50, dis 25 %
American (Enterprise Mfg. Co.).... dis 20 %
French Steel.... dis 20 %
The Swift (Lane Bros.).... dis 25 %
Combined Dinner Pail and Lantern.
Per doz $15.00.... dis 30 %
Compasses, Dividers, &c.
Compasses.... dis 50 %
Callipers.... dis 50&5 %
Dividers.... dis 60 %
Bemis & Call Co.'s Dividers.... dis 60&20 %
" " Compasses & Callipers.... dis 55 %
" " Wing & Inside or Outside. dis 50&5 %
" " Double.... dis 60 %
" " Call's Pat. Inside.... dis 35&10 %
Cook's.... dis 15 %
Excelsior.... dis 50 %
Miller's Patent.... dis 25 %

Coopers' Tools.
Bradley's.... dis 15 @ 20 %
Corkscrews.—Humason & B.... dis 40 %
Corn Knives and Cutters.—Bradley's.... dis 10 %
Crow Bars.
Cast Steel.... ₩ lb 6c
Iron, Steel Points.... ₩ lb 4c
Crucibles.—Gautier & Co.... ₩ No.
Curling Irons, &c.
⅛, ⅜, ¾ in., $1.80, 2.00, 2.40.... dis 10 %
Curling Tongs.... ₩ doz $3.65, dis 10 %
Pinching Irons.... ₩ doz 7.50, dis 20 %

Curry Combs.
Fitch's (List of No. 240, $1).... dis 50 %
Hotchkiss' & Kellogg's, Iron & Brass, old list. dis 45&7½ %
Hotchkiss' Novelty.... dis 20&10 %
Lawrence.... dis 50 %
Lawrence, with detachable Mane Comb.... dis 40 %
Rubber.... ₩ doz $9.00, dis 20&10 %
Curtain Pins.—Silvered Glass.... dis 15 %
White Enamel.... dis 15 %
Cutlery.
Meriden Cutlery Co. (Table).... net
Am. Miller Bro.'s Cutlery Co.... dis 25 %
Humason & Beckley, Pocket.... dis 33⅓ %
Naugatuck Cutlery Co.... list net
Aaron Burkinshaw's Pocket.... dis 35 %
Dog Collars.
Embossed Gilt.... dis 20 %
Leather.... dis 30 %
Brass.... dis 25 %

Door Springs.
Torrey's Rod.... ₩ doz $1.75 net
Gray's ".... ₩ doz $1.65, net
Bee Rod.... ₩ doz $1.60, net
Gem (Coil)—
No. 1, Large, Japanned.... ₩ doz $3.50
No. 2, Medium, ".... ₩ doz 2.50
No. 3, Small. ".... ₩ doz 2.00 } dis 15&20 %

Challenge (Coil)— Nos.	9	7	6	
Japanned ₩ doz	$2.00	2.50	3.50	dis 30 %
Coppered ₩ doz	4.00	4.50	5.00	
Galvanized ₩ doz	3.50	4.00	4.50	
Nickeled ₩ doz	5.50	6.00	7.00	

Premium (Coil)— Nos.	1	2	3	
Japanned ₩ doz	$7.50	6.25	5.00	dis 30 %
Nickeled ₩ doz	11.00	9.50	8.00	

Star (Coil)—For Cop'd, Nickel-Plated, &c. see list.
No. 4, ("Snoo Fly") Screen door size ₩ doz $1.75
No. 5, Screen Door Size.... ₩ doz $2.00
No. 6, Medium.... ₩ doz 2.50
No. 7, Large.... ₩ doz 3.50 } dis 30 %
Sabin's Lever, No. 1, $1; 2, $1.50; 3, $2; 4, $2.50; dis 35 %
Sabin's Boss, No. 1, $5.40; 2, $4.20; 3, $3.60.. dis 60&10 %
Sabin's Crown.... ₩ doz $2.75, dis 60&10 %
Philadelphia.... 5 in., $5.00; 8 in., $7.00, dis 35 %
Barker's Concealed.... dis 20 %
Cowell's.... No. 1, $18.00; No. 2, $15.00 ₩ doz. dis 50 %
Rubber, complete.... ₩ doz $1.90, net

Drawing Knives.
Crossman's No. 1.... dis 70&5 %
Merrill.... dis 70 %
Nobles Mfg. Co.... dis 15 %
Bradley's.... dis 35 %
Adjustable Handle.... dis 20 %
Witherby Tool Co.... dis 70 %
Douglass.... dis 70 %

Drills and Drill Stocks.
Blacksmiths'.... each $1.80 net
Blacksmiths' Self Feeding.... each $7.50, dis 20 %
Breast, P. S. & W.... dis 35 %
" Hotchkiss.... dis 20 %
Breast, Wilson's.... dis 20
" Miller's Falls.... each $2.50, dis 25 %
" Bartholomew's.... each, $2.50 dis 25&10 %
Ratchet, Merrill's.... dis 25 %
" Ingersoll's.... dis 25 %
" Whitney's.... dis 30 %
" Weston's.... dis 20 %
" Moore's Triple Action.... dis 20 @ 25 %
Whitney's Hand Drill.... dis 10 %
Wilson's Drill Stocks.... dis 10 %
Automatic Boring Tools.... each $2.75, dis 30 %
Drill Chucks.—Morse's Beach Patent.... dis 30 %
" Adjust.. each $10.00, dis 10 %
Danbury.... $8.00, dis 30 %

Egg Beaters.
Dover.... ₩ doz $5.00, dis 25 %
Family.... ₩ doz $3.00 net
National.... ₩ doz $4.50, dis 33⅓ %
Elevator Buckets.
Mill E. Buckets, light, 3½ to 10 in., (Duc's Improved) ₩ 100 $15.00 @ $54.00, net
Mill E. Buckets, heavy, 5 to 10 inches (Duc's Improved) ₩ doz $5.60 @ $10.20, net
Storehouse, (Duc's Patent) 12 to 17, $12.00 @ $20.00.... net
Emery and Emery Paper.
Genuine Chester—Regular Nos.... ₩ lb 6c
" " Flour and FF.... ₩ lb 5c
" " in 10-lb. cans.... 2c extra
Washington Mills—Regular Nos.... ₩ lb 8c
" Flour.... ₩ lb 5c
Wellington Mills, Grain.... ₩ lb 10c net
" " Flour.... ₩ lb 8c net
Hampden Emery Grain.... 5c net
" " Flour.... 3c net
B. & A. Emery Paper.... dis 20@25 %

Enameled and Tinned Ware.
Kettles.... dis 45 %
Sauce Pans.... dis 35 %
Tinned Sauce Pans.... dis 35 %
Escutcheon Pins.
Iron.... dis 33⅓ %
Brass.... dis 45 %
Escutcheons.
Door Lock.... Same discounts as Door Locks
Brass Thread.... dis 60&10 %
Wood.... dis 25 %

Faucets.
Fenn's.... dis 50 %
Fenn's Cork Stops.... dis 40 %
Star.... dis 55&10 %
Frary's Patent Petroleum.... dis 30 %
Wood and Metallic.... dis 40 %
West's Patent Key.... dis 45 %
Metallic Key, Leather Lined.... dis 45 %
Cork Lined.... dis 70&10 %
Enterprise (Self Measuring).... ₩ doz, $36.00, dis 20 %
Felloe Plates.... ₩ lb 15c, dis 55 %
Files.
American File Co.... $5.00 to £. dis 35 %
Auburn.... $5.00 to £. dis 35 %
Arcade.... $5.00 to £. dis 35 %
G. & H. Barnett.... dis 25 %
Nicholson.... (Nicholson List) dis 35 %
Heller & Bros.... $5.00 to £ dis 25 %
Madden & Cockayne File Co.... $5.00 to £, dis 25 %
J. & Riley Carr.... 4.50 to £
Stubs'.... $7.00 @ 7.50 to £
Butcher's.... 4.50 to £
Walter Spencer & Co.'s "Diamond".... 4.50 to £
Fisher's.... 4.75 to £
Moss & Gamble.... 4.50 to £
H. Disston & Sons (new list).... dis 35 %
Western (new list).... dis 35 %
Limet & Co. (French).... $4.25 to £

Fluting Machines.
Knox, 4-inch Rolls.... $2.50 each net
" 6 ".... 3.00 each net
" 8 ".... 5.00 each net
Peerless, 4-inch Rolls.... 4.00 each net
" 5 ".... 4.75 each net
Eagle, 3½-inch Roll.... $1.62½ each net
" 5½ ".... $2.12½ each net
Eureka, No. 1, 7-inch Roll.... 6.50 each, dis 33⅓ %
" No. 2 5-inch Roll.... 5.50 each, dis 33⅓ %
Crown.... 4½-in., $2.62½; 6-in., $3.00; 8-in., $5.00 each net
Star.... 4½ in., $3.50; 6 in., $4.00 each net
Crown Jewel.... 6 in., $2.50 each net
Domestic Fluter.... 1.50 each net
Geneva Hand Fluter, No. 1.... ₩ doz $15, dis 20 %
Crown Hand Fluter, Nos. 1, $12; 2, $10; 3, $8 ₩ doz. net
Shepard Hand Fluter.... No. 75 ₩ doz $15, dis 10 %
" ".... No. 104, ₩ doz $12.00 net
Clark's Hand Fluter.... ₩ doz $15.00, dis 20 %
Combined Fluter and Sad Iron.... ₩ doz 15.00, dis 30 %
Buffalo.... ₩ doz 10.00, dis 10 %
Fluting Scissors.... dis 45&10 %
Forks.
Hay, Manure and Sp'ding.... new list, dis 15 %
Plated" A 1, Rogers & Bro.... dis 40&5 % cash
" Reed & Barton.... dis 40&5 %
Fruit and Jelly Presses.
Enterprise Mfg. Co.... dis 20 %
Fry Pans.
Burnished, list as follows.... dis 60&10&5 %

No.	0	1	2	3	4	5	6	7	8
₩ doz	$3.00	$3.75	4.25	4.75	5.25	6.00	7.00	8.00	9.00

Acme Patent, same list as above.... dis 45@45&5 %

Gauges.
Marking, Stanley's.... dis 50&10 %
" Chapin's.... dis 50&10 %
" Star.... dis 35 %
Wire.... dis 10 %
" Smith's Patent.... ₩ doz $18.00, dis 40 %
Gimlets.
Nail and Spike.... dis 55 %
"Bee" Gimlets.... ₩ gross $12.00 dis 60&10 %
"Eureka" Gimlets.... dis 50 %
"Diamond" Gimlets.... dis 40 %
Double Cut, Shepardson's.... dis 40&10 %
" " Hartwell's.... dis 50 %
" " Ives'.... dis 55 %
" " Douglass'.... dis 40
Glue Pots.
Tinned and Enameled.... dis 50 %
Family, Howe's "Eureka".... dis 40 %
" L. F. & C.'s "Handy".... dis 40 %
Grindstone Fixtures.
Sargent's Patent.... dis 75&10 %
Reading Hardware Co.... dis 40&10&2 %
" "Keystone".... dis 45&5&10&2 %

Hammers.
Maydole's, New List of Dec. 10th, 1878.... dis 15 %
Cheney's, List January, '79.... dis 25 %
H. Hammonds.... dis 20 %
Verree.... dis 5 %
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 and 1.75. dis 25&10 %
Warner & Noble's.... dis 10 %
Kip's (new list, Dec. '78).... dis 25 %
Hand Cuffs and Leg Irons.
Providence Tool Co.'s Hand Cuffs, $15.00 ₩ doz
" " Leg Irons, $25 ₩ doz.... } dis 10 %
Tower's.... dis 25 %

Handles.—Door or Thumb Latches—

Nos.	0	1	2	3	4	
Per doz	$0.80	1.00	1.18	1.35	1.50	dis 70&10 %

Roggin's Latches.... per doz 28 @ 33c net
Bronzed Iron Drop Latches.... ₩ doz 60 @ 80c net
Jap'd Store Door Handles—Nuts, $1.25; Plate $0.80
no Plate, 65c.... net
Barn Door.... per doz $5.00, dis 70&10&10 %
Wrought Chest.... dis 70 %
Surface Chest, Sargent's list.... dis 75&10 %
Flush Chest.... dis 70&10 %
Lifting.... dis 70 %
Saw and Plane.... dis 40&10 %
Hammer and Hatchet.... dis 20 %
Brad Awl.... ₩ gross $2.00, dis 25&10 %
Hickory Firmer Chisel, assorted, ₩ gross $4.50
" " large, " 5.00
Apple " " assorted, " 5.00
" " large, " 6.00
Socket " " assorted, " 3.00
" Framing " assorted, " 5.00
File, assorted, ₩ gross.... 2.75
Auger, assorted, ₩ gross.... 6.00
" large, ".... 7.00 } dis 25&10 %
Patent Auger, Ives'.... dis 25&10 %
" Douglass'.... ₩ set $1.25, dis 10 %
" Swan's.... ₩ set $1, dis 20&10 %

Hangers.
Barn Door.... dis 70&10 %
Novelty.... dis 40 %
Challenge.... dis 50 %
Climax (Anti-Friction).... dis 50&10 %
Sterling Improved (Anti-Friction).... dis 75&10 %
Cheritree.... dis 20&10 %
Harness Snaps.
Henshaw's.... List of 1¼ changed to $14.00, dis 55 %
Judd's.... " " 14.00, dis 60 %
Fitch's (Bristol).... " " 14.00, dis 55 %
Hotchkiss'.... dis 10 %
Andrews'.... dis 40 %
Sargent's.... dis 66⅔&10 %
New York Wire.... dis 20&20 %
"German".... dis 70 %
Covert.... dis 40&10 %

Hatchets.

	Nos.				
Isaiah Blood					dis 35 %
Shingling,	Nos. 1 2 3	₩ doz $7.25	$8.00	$8.75	
Claw,	Nos. 1 2 3	₩ doz 7.75	8.50	9.25	
Lathing,	Nos. 1 2 3	₩ doz 7.50	8.00	8.50	
Hunt's					dis 20 & 10 %
Shingling,	Nos. 1 2 3	₩ doz $7.25	$8.00	$8.75	
Claw,	Nos. 1 2 3	₩ doz 7.75	8.50	9.25	
Lathing,	Nos. 1 2 3	₩ doz 7.50	8.25	9.00	
Hurd's					dis 45 %
Shingling,	Nos. 1 2 3	₩ doz $8.00	$8.50	$9.00	
Claw,	Nos. 1 2 3	₩ doz 9.00	9.50	10.00	
Lathing,	Nos. 1 2 3	₩ doz 8.00	8.50	9.00	
Simmon's					dis 35 %
Shingling,	Nos. 0 1 2 3	₩ doz $7.50 $8.00	$8.50	$9.00	
Claw,	Nos. 1 2 3	₩ doz 9.00	9.50	10.00	
Lathing,	Nos. 1 2 3	₩ doz 8.00	8.50	9.00	
Broad,	Nos. 1 2 3 4	₩ doz 9.00 10.00	12.00	14.00	
"	Nos. 5 6 7 8	₩ doz 16.00 18.00	20.00	22.00	
Collins					dis 10 %
Shingling,	Nos. 1 2 3	₩ doz $6.00	$6.50	$7.00	
Claw	Nos. 1 2 3	₩ doz 6.50	7.00	7.50	
Lathing,	Nos. 1 2 3	₩ doz 6.00	6.50	7.00	

Hay Knives.
"Lightning".... ₩ doz $20.00 net
Wadsworth's.... dis 30 %
Hinges.
Gate, Western.... ₩ doz $6.25, dis 70&10 %
" N. E.... ₩ doz $10.13, dis 70&10 %
" N. E. Reversible.... ₩ doz $10.13, dis 70&10 %
Gate, Clark's No. 1.... ₩ doz $6.00, dis 50&10 %
" N. Y. State.... ₩ doz $6.10, dis 70&10 %
" Automatic.... ₩ doz $12.50 dis 40 %
" Common Sense.... dis 20&10 %
" Seymour's.... dis 40&10 %
" Shepard's.... No. 10 ₩ doz $7.00, dis 50&10 %
Rolled Blind Hinges.... dis 60&10&10 %
Rolled Plate.... dis 60&10
Rolled Raised.... dis 60&10 %
Wrought Strap and T, list Dec. 20, '77.... dis 60&10 %
Plate Hinges "Providence"... { 6 to 10 in. 5c ₩ lb; over 10 in. 4c ₩ lb }.... dis 10 %
Screw Hook and Strap.... { 8, 10, 12 in., 11c; 14 to 36 in., 9½c } dis 50 %
Heavy Welded Hook.... { 8 to 12 in., 11c; 14 in. & up, 9½c } .. dis 30 %
Screw Hook and Eye.... { ⅝ & 1 in., 10c; ¾ in., 12c; ½ in., 14c; ⅜ in., 16c } dis 35 %

Hoes.—Solid Shank, C. S.... ₩ doz $5.25, dis 15 %
Socket.... ₩ doz 5.75, dis 15 %
Riveted Shank.... ₩ doz 5.25 dis 15 %
Grub.... dis 30 %
Planters'.... dis 30 @ 35 %
Scovill Pattern.... dis 25 @ 30 %
Scovill Pattern, Handled.... dis 25 %
Hick's Pat, Solid C. S. Planters'.... dis 20&10 @ 30 %
" " Scovill Pattern dis 20&5 @ 35 %
Winsted & Lane, Planters.... dis 25@30 %
" " Scovill Pattern.... dis 20@25 %

Hooks.
Bird Cage, Sargent's list.... dis 70&10@70&10&10 %
Cotton.... dis 50 %
Cotton, Patented (N. Y. Mallet & Handle Wks), dis 30 %
Cotton (Humason & Beckley Mfg. Co.).... dis 40 %
Belt, (new list) ₩ c.... dis 30&10 %
Bench—Hotchkiss', $5.00 ₩ doz.... dis 10 %
" Weston's, No. 1, $10.00; No. 2, $9.00 ₩ doz dis 25 %
" McGill's, $3.00 ₩ doz.... dis 10 %
" Skinner's, $6.25 per doz.... dis 20 %
Clothes Line, Hart's list.... dis 60&10&5&10 %
" Sargent's list.... dis 70&10&10 %
" Reading list.... dis 50&10&2 %
Ceiling.. Harness. { Hart's list.... dis 70&10 %
Sargent's list.... dis 70&10 %
Reading list.... dis 50&10&2 % }
Coat and Hat, Hart's list.... dis 65&5&10 %
" Sargent's list.... dis 70&10 %
" Reading.... dis 50&10&2 %
" T. & S. Mfg. Co's list.... dis 25 %
Tassel (T. & S. Mfg. Co.).... dis 40 %
Wrought Staples and Hooks and Staples, dis 75&10 @ 80 %
" Staples, Stanley's list.... dis 40 %
Wire Screw Hooks and Eyes, new list, dis 40&10 % cash
Grass and Bush.... dis 40@45 %
Whiffletree—Patent.... dis 45 %
Hooks and Eyes—Malleable Iron.... dis 70&10 %
" Brass.... dis 70&10 %
Horse Hay Forks.
Am. Double Acting, $7 each.... dis 30 @ 40 %

Horse Nails.

	Nos. 5	6	7	8	9	10	
Ausable ₩ lb	30c	27c	25c	24c	23c	22c	dis
" Finished, Polished or Blued	31c	28c	26c	25c	24c	23c	30 %

A C.... 60 50 40 26 24 22 21 20 19 18 18 18c } dis
Nos.... 1 2 3 4 5 6 7 8 9 10 11 12 } 15 %

	Nos. 5	6	7	8	9	10	
Bridgewater Iron Co. Pointed and Polished	26c	23c	21c	20c	19c	18c	
Cortland P't'd & Blued	26c	23c	21c	20c	19c	18c	
Globe (New list)	26	23	21	20	19	18c	dis 10 %
H. P. Pointed and Finished	26	23	21	20	19	18	dis 20 %
North Western Fini'h'd	26	23	21	20	19	18c	net
" " Plain	25	22	20	19	18	17c	net
National, Pointed and Polished, Pat. Fin.		25	23	22	21	20c	net
Putnam Hammer, P't'd	26	23	21	20	19	18c	net
Vulcan P't'd & Blued.	26	23	21	20	19	18c	10 %

Horse Shoes.—Burden.... ₩ keg $3.37½
R. I. Horse Shoe Co., Perkins' Improved Light, Medium and Heavy.... ₩ keg 3.37½
Mule Shoes.... ₩ keg 4.37½
Perkins' Snow.... ₩ keg 3.87½

Ice Awls, Chisels, &c.
American Ice Chisel.... ₩ doz. $6.00 dis 45 %
National ".... ₩ doz $6.25 dis 20 %
Novelty Ice Breakers.... ₩ doz $6.25 dis 20 %
White's Sliding Head Picks.... ₩ doz $2.50 dis 40 %
Dunlap's Ring Picks.... ₩ doz $3.00, dis 40&10 %
Wood Head Picks, Sargent's ₩ doz $1.85, dis 60&10&10 %
Iron ".... ₩ doz 1.85, dis 60&10&10 %
Ice Mallets Pick in Head.... ₩ doz 1.75 net
" Pick in Handle.... ₩ doz 3.00 net
Ice Axes, Small Castor Malleable.... ₩ doz 1.20 net
Kitchen Ice Tongs.... ₩ doz 2.25 net
Combination Ice Tools.... ₩ doz $2.50 dis 30&10 %

Kettles.
Brass, 7 to 13 inches inclusive.... ₩ lb 35c net
Brass, larger than 13 inches.... ₩ lb 40c net
Enameled.... dis 60&10 %
Knives.
Ames' Butcher Knives.... dis 20 %
" Shoe.... dis 15 %
" Bread.... ₩ doz $1.50, dis 15 %
Moran's Shoe and Bread Knives.... dis 20 %
Hay and Straw—"Wadsworth's".... dis 30 %
Table and Pocket.... See Cutlery
Knobs.
Carriage (Jap'd 80c. ₩ gross).... dis 60&10 %
Base—Common.... dis 30&10 %
" Elastic End, No. 8.... dis 70 %
Hemacite Door Knobs.... dis 35 %
Door, Mineral; " Por. Jap'd; " " Plated; " " Por.... Same discounts as Door Locks.
Furniture, Plain.... 75c gross inch, dis 10 %
" Wood Screws.... dis 20 %
Picture (T. & S. Mfg. Co.).... dis 50 %
" Sargent's.... dis 60&10&10 %
Hemacite Picture.... dis 35 %
Shutter, Porcelain.... dis 60&10&10 %

Ladles.
Melting—Hart's.... dis 55&10 %
" Sargent's.... dis 50&10 %
" Reading.... dis 35&10&2 %
" Monroe's Patent.... ₩ doz $4.00, dis 20 %
Lanterns.
Tubular.... No. 0, $10.00; No. 1, $11.50; With Guards, 50c extra.... net
Hurricane.... dis 25 %
Peerless.... No 5, ₩ doz $11.75, dis 10&10 %
Brady's Patent.... dis 10&10 %
Ætna.... dis 10&10 %
Yankee.... dis 10&10 %
De Beque.... dis 10&10 %
Police... Small, $7.50; Med., $9.00; Large, $12.00, dis 20&10 %
Convex Reflector.... $3.60 ₩ doz, dis 10 %
Lemon Squeezers.
Porcelain Lined.... ₩ doz $4.00@4.50 net
Eureka, Tinned.... ₩ doz $8.00, dis 10 %
Dunlap's Improved.... ₩ doz $4.00 net
Sammis'.... No. 1, $7.50; No. 2, $12.00 ₩ doz., dis 55 %
Townsend's Patent.... $6.00 ₩ doz., dis 33⅓ %
Lines.—Linen Fish.... dis 25&10 %
Cotton Chalk.... dis 55 %
Sil. Lake Chalk.... Nos. 0, 1, 2, 3, $6.00, $6.50, $7.00, $7.50.... dis 15&10 %
Mason's Linen.... dis 25&10 %
Wire Clothes, Galvanized.... each 30 @ 40c net

Locks and Latches.
Cabinet—Eagle; " Gaylord; " Bridgeport } Reduction in list of some numbers March 1, 1879.... dis 25&2 %
" Barnes & Deitz.... dis 30 %
Trunk.... dis 25 %
Langstroth & Crane's List Jan. 1, '77.
Round Key.... dis 40&10 %
Flat Key.... dis 33⅓&10 %
Barnes & Deitz, Flat Key.... dis 30 %
Yale Lock Co., Flat Key.... dis 40 %
Shepardson's, Flat Key.... dis 35 %
American Lock Mfg. Co.... dis 33⅓ %
Plate.... dis 33⅓&5&2 %
F. Many's "Extension Cylinder".... $10.50 ₩ doz. net
DOOR LOCKS, &C.
Branford.... dis 60&10&2 %
Norwalk.... dis 50&10&2 %
Norwich.... dis 50&10&2 %
Russell & Erwin.... dis 70&10&2 %
Mallory, Wheeler & Co.... dis 35&10&2 %
Reading Hardware Co.... dis 35&10&2 %
Trenton.... dis 40&5&2 %
Continental.... dis 33⅓ %
Padlocks—Russell & Erwin; " Mallory, Wheeler & Co.; " Wm. Wilcox & Co.... dis 33⅓&5 % and 2 % for cash
" American Lock Mfg. Co.... dis 33⅓ %
" Romer's.... dis 30 %
" Conestoga.... dis 60 %
" J. H. McWilliams.... dis 10 %
" Barnes & Diets.... dis 35 %
" Penn Lock Works.... dis 30 %

Mallets.—Hickory and Lignumvitæ.... dis 20 %
Meat Cutters.
Dixon's (P. S. & W.) Nos. 1 2 3 4
₩ doz.. $14.00 17.00 19.00 30.00—dis 25
Miles' Challenge.... Nos. 1 2 3
₩ doz.. $22.00 30.00 40.00—dis 30 %
Perry's Nos. 1 2 3 4 4 g'rd 5 g'rd
Each.... $3.00 4.00 5.00 11.00 13.00 36.00—dis 40 %
Woodruff's (P. S. & W.).... Nos. 100 150
₩ doz. $15.00 18.00—dis 40 %
Hales'.... Nos. 11 12 13
₩ doz.. $36.65 44.40 56.65—dis 50&10&2 %
Draw Cut.... Nos. 5 2 6 8 10
Each.. $50.00 75.00 80.00 225.00 400.00—dis 20 %
American.... dis 25 %
Nos.... 1 2 3 4 B 5
Each.... $5.00 7.00 10.00 25.00 50.00 60.00
Silver & Deming.... dis 25 %
Mincing Knives.
Am., 1 blade, $12; 2 blades, $21; 3 blades, $30 per gross....
Lathrop's.... dis 25&10 %
Smith's.... per doz $1.75, dis 10 %
Molasses Gates.
Stebbins Pattern.... dis 62½&10 %
" Genuine.... dis 65&10 %
" Tinned Ends.... dis 40&10 %
Chase's Hard Metal.... dis 30 %
Bush's.... dis 20 %
Lincoln's Genuine.... dis 62½&10 %
Weed's.... dis 15 %

Nails.... See Trade Report
Nuts and Washers.
Square Nuts.... 7c off list
Hexagon Nuts.... 8c off list
Washers.... 7c off list
Nut Crackers
Table (Humason & Beckley Mfg. Co.).... dis %
Blake's Pattern.... ₩ doz $2.00, dis 10 %

Oakum.
Best.... ₩ lb 10 c
U. S. Navy.... ₩ lb 8¾c
Navy.... ₩ lb 7½c
Oilers.—Zinc and Tin.... dis 55&10
Brass and Copper.... dis 55 %
Olmsted's.... dis 45&10 %
Broughton's.... dis 50 %
Malleable (Hammer's).... ₩ doz $5.00, dis 10 %
Prior's Patent or "Paragon," Zinc.... dis 55&10 %
" " Brass.... dis 55 %
Ox Balls.... dis 60&10 %

Pencils.
Faber's Carpenters'.... High list, dis 40&10 %
" Round Gilt.... ₩ gross $5.25 net
Dixon's Lead.... ₩ gross 4.50 net
" Lumber.... ₩ gross 6.75 net
Packing, Steam.
N. Y. Belting and Packing Co.... new list net
Picture Nails.
Brass Head, Sargent's List.... dis 60&10 %
" T. & S. Mfg. Co.... dis 50 %
Porcelain Head, Sargent's List.... dis 60&10 %
" " Judd's List.... dis 40 %
Porcelain Head, T. & S. Mfg. Co.... dis 40 %
Pinking Irons.... ₩ doz 75c, net
Plaiting Machines.
Magic.... ₩ doz $10.00, net
Astor Plaiting Machine.... each $15.00, dis 20 %
Crown Plaiting Machines.... dis 25 %
6in., $6.00. 10in., $10.00, each
Planes and Plane Irons.
Bench, First Quality.... dis 35&10 @ 35, 10&10 %
" Second ".... dis 50&10 %
Moulding.... dis 35&10 %
Bailey's (Stanley R. & L. Co.) new list Jan. '79. dis 25&10 %
The Stanley (S. R. & L. Co.) " ".... dis 25&10 %
Bailey's "Victor".... dis 25&10 %
Defiance Adjustable, new list.... dis 25&10 %
Plane Irons, Butcher's.... $5.50 to £
" Buck Bros.... $5.00 to £
" Auburn Tool Co.'s.... dis 25 %
" Defiance.... dis 25&10 %
" Middletown Tool Co.... dis 10 %
" Ohio Tool Co.... dis 20&10 %
" Spear & Jackson's.... $5.00 to £
" Sandusky Tool Co.... dis 10&10&10 %
Pliers and Nippers.
Button's Patent.... dis 33⅓ %
Hull's Patent Nippers, No. 1, $15; No. 2, $21 ₩ doz, dis 25 %
Humason & Beckley Mfg. Co.... dis 33⅓ %
Gas Pliers.... dis 50 %
Eureka Pliers and Nippers.... dis 25 %
Russell's Parallel.... dis 25 %
P. S. & W. Cast Steel.... dis 40 %
" " End Cutting Nippers.... dis 25 %
" " Tinners' Cutting Nippers.... dis 20 %
Plumbs and Levels.
Disston's.... dis 70 %
Stanley R. & L. Co.'s Pat. Adjustable.... dis 65&10 %
" " " Non-Adjustable.... dis 65&10 %
Chapin's Patent Adjustable.... dis 65&10 %
" Non-Adjustable.... dis 65&10 %
Standard Rule Co.'s New Adjustable.... dis 60&10 %
" " Non-Adjustable.... dis 60&10 %
Johnson's Patent Adjustable.... dis 60&10 %
Pocket Levels.... dis 65&10
Post Hole and Tree Augers.
Samson Post Hole Digger.... per doz $36.00, dis 20 %
Fletcher Post Hole Augers.... ₩ doz 36.00, dis 20 %
Vaughan's Post Hole—
6 in. $23.60; 7, 8 and 9 in. $25 per doz.... dis 25 %
Leed's.... $5.00 each, dis 45 %
Eureka.... ₩ doz $40.00, dis 40 %
Potato Parers, &c.
Bay State.... ₩ doz $13.00 dis 10 %
Saratoga "Peeler and Slicer.... ₩ doz 7.75 dis 10 %
Pruning Hooks and Shears.
Disston's Combined Pruning Hook and Saw per doz $18.00, dis 20 %
" Pruning Hook.... 11.50, dis 20 %
Pruning Shears.... ₩ doz $4.50@$5.00 net
Pulleys.
Judd's Axle.... ₩ doz $0.50, dis 40 %
Hot House and Tackle.... dis 70&10 %
Jap'd Screw.... dis 70&10 %
Brass Screw.... dis 60&10&10 %
Jap'd Side.... dis 70&10 %
" Clothes Line.... dis 73&10 %
Hay Fork Solid Eye, $4.50; Swivel, $5.00, dis 40&10&10 %
" " "Anti-Friction,".... $7.50 dis 20&10 %
" " "F" Common and Pat. Bushed.... dis 25 %
" " Tarbox Pat. Iron.... dis 35 %
Shade Rack.... dis 50 %
Punches.
Belt or Drive.... ₩ doz $2.00; 2.25; 2.50, dis 50 %
Bemis & Call Co.'s Cast Steel Drive.... dis 40&30 %
" " Springfield Socket.... dis 50&10 %
Spring.... ₩ doz $7.00, dis 50 %
" Leach's Patent.... dis 15 %
Bemis & Call Co's Spring and Check.... dis 50 %
Solid, Tinners'.... ₩ doz $1.44, dis 40&10 %

Rail.
Sliding Door Wrought Brass.... ₩ lb 38c dis 25 %
" Iron, Painted.... ₩ foot 9c, dis 60 %
Barn Door, ⅛, ¾ and ⅞ inch.... dis 75&10 %
" for N. E. Hanger.... dis 70&10 %
Rakes.
Cast Steel.... dis 15 %

8	10	12	14	16 teeth.
$5.00	5.75	6.50	7.25	8.00

Malleable.... dis 15 %

10	12	14 teeth.
$3.60	4.00	4.40

Razor Straps.
Genuine Emerson.... dis 40 %
Badger's Emerson.... dis 40 %
Badger's (not Emerson).... dis 25 %
Evans'.... dis 40 %
Imitation Emerson.... ₩ doz $2.75, dis 40&10 %
Hunt's.... dis 40&5 %
Chapman.... dis 15 @ 20 %
Saunder's.... dis 25 %
Torrey's.... dis 25 %
Rivets.
Iron and Tinned.... dis 50 %
In bulk, new list of Jan. 10, 1878.... dis 35 %
Copper Rivets and Burs.... dis 50 %

Nos.	7	8	9	10	11	12	13	14	15
₩ lb	49c	50c	52c	54c	56c	58c	60c	64c	70c

Tinned Iron Belt Rivets and Burs.... dis 35 %
Rivet Sets.... dis 45 %
Rods.
Stair.... New list, March 1, '79, dis 33⅓ %
" American Patent.... dis 40 %
Rollers.
Barn Door, Sargent's list.... dis 70&5&10 %
Novelty.... dis 10 %
Acme (Anti-Friction).... dis 40 %
Rope. Manufacturers' Net List July 2, 1879.
Manila.... ½ inch and larger ₩ lb 13 c
" .... ⅜ inch ₩ lb 13½c
" .... ¼ and 5-16 inch ₩ lb 14 c
" Tar'd Rope.... ₩ lb 12½c
" " Lath Yarn.... ₩ lb 14 c
" Hay Rope.... ₩ lb 13 c
Sisal.... ½ inch and larger ₩ lb 11 c
" .... ⅜ inch ₩ lb 11½c
" .... ¼ and 5-16 inch ₩ lb 12 c
" Hay Rope.... ₩ lb 11 c
Rules. Boxwood Ivory.
Chapin's; Standard; Willis, Thrall & Son; Stephens; Stanley.... Boxwood dis 70 &10 %; Ivory dis 60 &10 %

Sad Irons.
From 4 to 10 lbs.... ₩ lb 2½c net
Self-Heating.... ₩ doz $8.50 net
" Tailors'.... ₩ doz $18.00 net
Gleason's Shield and Toilet.... dis 25 %
Enterprise Patent Cold Handle.... dis 33⅓ %
Mrs. Pott's Pat. Cold Handle, "Crown".... dis 33⅓ %
Combined Fluter and Sad Iron.. per doz $15.00, dis 15 %
Sand Paper.
Baeder & Adamson's Flint, 00 to 1½.. $4.25 ₩ ream
" " " 2, 2½ & 3. 4.75 ₩ ream
" " " Assorted 4.25 ₩ ream
" " Star.... 3.25 ₩ ream
" " Emery.. ₩ ream $6.50 @ 11.50 } dis 20@25 %
New England, same list as B. & A. Flint.... dis 20 %
Gage's.... dis 20&5 %
Sash Cord.
Common.... ₩ lb 16 @ 13½c net
Patent.... ₩ lb 18c net
Silver Lake, Russia Flax.... ₩ lb 55c, dis 10 %
" White Cotton.... ₩ lb 55c, dis 10 %
" Drab Cotton.... ₩ lb 60c, dis 10 %
Raw Hide.... dis 25 %
Steel Ribbon.... dis 10 %
Sash Locks.
Clark's, No. 1, $10.00; No. 2, $8.00 per gross.... dis 50 %
Ferguson's.... dis 33⅓ %
Walker's.... dis 10 %
Hammond's Window Springs.... dis 25 %
Northup Window Springs.... $9.00 per gross, dis 10 %
The Perfect, Clark & Smith, Plain Jap'd ₩ gro $10.00 net
" " Por. Knob Jap'd. ₩ gro 14.00 net
" " Nickel-Plated... ₩ gro 27.00 net
Sash Weights.—Solid Eyes.... ₩ lb 1¼ @ 1⅜c
Sausage Stuffers or Fillers.
Miles.... ₩ doz $20, dis 30 %
Perry.... ₩ doz, No. 1, $15; No. 0, $21, dis 40 %
Draw Cut No. 4.... each $30.00, dis 20 %
Enterprise Mfg. Co.... dis 20 %
Silver's.... dis 25 %
Saws.
Disston's Circular.... dis 35 %
" Mill.... dis 35 %
" Cross Cut.... dis 25 %
" Hand, Panel, Rip, &c.... dis 20 %
Boynton's Lightning, Cross Cuts, new list.... dis 30 %
" One-Man, all lengths.... dis 25 %
" Billet Webs, 30 in.... ₩ doz $8.00, dis 30 %
Wheeler & Clemson Mfg. Co.'s Hand.... dis 20 %
" " " Cross-Cut.... dis 35 %
Livingston's Butcher and Kitchen.... dis 20 %
Framed Wood—

Nos.	101	102	103	104	105	
Per doz	$10.00	8.[illegible]	10.00	7.50	8.25	net

Saw Frames.
White, Vermont.... ₩ doz $1.35, dis 25 %
Red, Polished and Varnished.... ₩ doz $2.00, dis 25 %
Saw Rods.... $10 list dis, 10&10 %
Saw Sets.
Boynton's Patent.... per doz. $10.00, dis 30 %
Stillman's Genuine.... ₩ doz $3.38@$3.50 net
" Imitation.... ₩ doz $3.25. dis 35 %
Common Lever.... per doz $2.00, dis 35 %
Leach's.... No. 0, $8.00; No. 1, $15.00, dis 15 %
Nash's.... No. 1, $8.50; No. 2, $5.50, dis 20&10 %
Hammer, Hotchkiss.... $5.50, dis 10 %

" Bemis & Call Co.'s New Pat.......dis 40&5 %
Bemis & Call Co.'s Lever & Spring Hammer.dis 35&10 %
" " Plate and Cross Cut.......dis 20 %
Aiken's Genuine.......$13.00, dis 50 %
" Imitation.......$7 00, dis 55 %
Hart's Patent Lever.......dis 20 %
Disston's.......dis 20 %

Scales.
Hatch, Counter, No. 171.......℘ doz $36, dis 45&10 %
" Tea, No. 161.......℘ doz $15.00 dis 55 %
Union Platform.......$6 00, dis 55 %
Turnbull's Market.......dis 20 %
Fairbanks'.......dis 20&5 %
Howe's.......dis 20&5 %
Chatillon's Grocers'.......dis 40 %
" Eureka.......dis 20 %
Family Universal.......dis 45 %
" Favorite.......dis 40 %
" Turnbull's.......dis 25 %
Scale Beams, Chatillon's list.......dis 25 %
" Sargent's list.......dis 60&10 %

Scrapers.
Adjustable Box Scraper (S. R. & L. Co.), $6.50, dis 25&10 %
Box, 1 Handle.......℘ doz $5.00, dis 10 %
" 2 " ....℘ doz 6.00 dis 10 %
Defiance Box and Ship.......dis 25&10 %
Foot.......dis 70&10 %
Ship (common).......per doz $3.00 net
" (Providence Tool Co.......dis 10 %

Screw Drivers.
Bart, Bliven & Mead.......dis 45&10&2 %
Douglass Mfg. Co.......dis 35&10 %
Disston's.......dis 52½ %
Disston's Patent Excelsior.......dis 52½ %
Buck Bros.......dis 25 %
Stanley Rule & Level Co., Varnished Hdls..dis 50&10 %
" " Black Handles...dis 40&10 %
Sargent & Co.'s.......dis 60&10 %

Screws.
Flat H'd Iron.......dis 60 %
Round Head Iron.......dis 45 %
Flat Head Brass.......dis 45 %
Round Head Brass.......dis 30 %
Brass and Silver Capped.......dis 40 %
Japanned, list of Plain Screws.......dis 55 %
Lag or Common Coach.......dis 70&5 %
Coach Patent Gimlet Point, List per 100.......dis 65 %
Bed.......dis 10@10 %
Machine, Flat Head, Iron, Am. Screw Co.......dis 25 %
" Round Head, Iron, " ....dis %
Bench, Iron.......dis 65&10 %
" Wood, Beech.......℘ doz $3.00, dis 15 %
" Hickory.......dis 20&10 %
Hand.......dis 20&10 %
Hand Rail, Sargent's.......dis 70&10 %
" " Humason, Beckley & Co's (low list) dis 40&10 %
Jack (Wilson's).......dis 35 %
Sash (T. & S. Mfg. Co.).......dis 25 %

Shears and Scissors.
Cast Steel.......dis 80&10 %
" Iron, 'American'.......dis 60 %
Seymour's Straight Trimmers.......dis 65 %
" Scissors.......dis 65 %
Pruning.......see Pruning Hooks and Shears.
Barnard's Lamp Trimmers.......℘ doz $3.75
Tinners'.......dis 20 %
Heinisch Trimmers and Scissors.......dis 60 %
" R. H. S. " " ....dis 65 %

Sheaves.
Sliding Door, M. W. & Co., list.......dis 35&10&2 %
" R. & E. list.......dis 70&10&2 %
" Patent Roller.......dis 25&2 %
" " " Hatfield's.......dis 70&10&2 %
" Russell's Anti-Friction.......dis 70&10&2 %
" Moore's Anti-Friction.......dis 45 %
Sliding Shutter, R. & E. list.......dis 50&2 %
" " Sargent's list.......dis 45&10 %
Moore's Anti-Friction (Hanging).......dis 45 %
Philadelphia Hanging.......dis 40&5&2 %

Shovels and Spades.
Ames, New list, Jan. 1, '79.......dis 20 %
Hussey, Binns & Co., Patent.......dis 15 %
" " Association List.......dis 20&5 %
Old Colony.......dis 30 %
Remington's (Lowman's Patent).......dis 30 %
Dunning's Shovels and Scoops.......dis 30&7½ %
B. Rowland's "Regular," new list.......dis 60 %
" Patent, new list.......dis 40&5 %
Oxford Patent, new list.......dis 40&5 %

Shovels and Tongs.
Iron and Brass Head, R. & E. list.......dis 50&2 %
" Hart's.......dis 50&10&2 %
Polished Steel.......new list, dis 50&10&2 %

Slates.
Square Frames, Round Cornered, by case.......dis 70 %
Less than a case.......dis 65&10 %

Spoke Shaves.
Defiance Metallic.......new list, dis 25&10 %
Iron.......dis
Wood.......dis 30 %
Bailey's (Stanley R & L. Co.) new list.......dis 25&10 %

Spoke Trimmers.
Bonney's.......℘ doz $10.00, dis 40&10 %
Stearn's.......℘ doz $10.00, dis 40 %
Ives'.......No. 1, $15.00; No. 2, $12.00 ℘ doz, dis 50&10 %
Douglass'.......℘ doz $9.00, dis 20&10 %

Spoons.
Tinned Iron.......dis 40&5 %
Basting.......dis 40&5 %
Britannia.......dis 70 %
Derby Silver Co.......dis 40&5&5 %
L Boardman's Sons, A1.......dis 40&5&5 %
Rogers & Bro., A 1.......dis 40&5 % cash
Rogers Cutlery Co.......dis 40&5&5 %
Reed & Barton.......dis 40&5 %
Hall & Elton.......dis 40&5 %
Holmes, Booth & Haydens.......dis 40&5 %
German Silver.......dis 30&10&5 %
Cast Steel, Sil. Plated.......dis 33⅓ %
Diamond Steel (L. Boardman's Sons).......dis 30&5 %
Tin (P. S. & W.), Teas.......$1.50 ℘ gross, net
" " Tables.......$2.50 ℘ gross, net
Tin Cowles Hdw Co.).......dis 10 %
" " " case lots.......dis 20 %

Stocks and Dies.
"Lightning" Screw Plate.......dis. 10 %

Stone.
Hindostan Stone.......℘ ℔ 6c } dis 33⅓ &10 %
" Ax Stone.......℘ ℔ 8c
" Slips.......℘ ℔ 10c
Sand Stone.......℘ ℔ 6c, dis 33⅓&10 %
Washita Stone.......No 1, ℘ ℔ 18c net
" ....No. 2, ℘ ℔ 15c net
" Slips.......No. 1, ℘ ℔ 42c net
Washita Stone (Boyd & Chase).......No. 1 ℘ ℔ 14c net
Turkey Oil Stone (Boyd & Chase).......4 to 8in, $1.00 ℘ ℔, dis 10 %
" Slips.......$2.50 ℘ ℔, dis 10 %
Lake Superior (Boyd & Chase).......℘ ℔ 20c, dis 10&5 %
" Slips " ....℘ ℔ 40c, dis 10&5 %
Grindstones, Family, Loring's.......dis 10 %

Stove Polish.
Joseph Dixon's.......℘ gross $6.00, dis 10 %
Gem.......℘ gross $4.50, dis 5 %
Gold Medal.......℘ gross $6.00, dis 25 %
"Mirror".......℘ gross $6.00, dis 5 %
Ruby.......℘ gross $5.75, net
Rising Sun.......℘ gross $5.75, net
Dixon's Plumbago.......℘ ℔ 8c, net

Squares.
Steel.......dis 50 %; full cases, dis 50&10 % } 2 % cash
Iron.......dis 50 %; full cases, dis 50&10 %
Nickel Plated.......add $2.50 @ $4.00 ℘ doz, net
Try Squares and T Bevels.......dis 50&10 %
Star Try Squares and Bevels.......dis 35 %
Disston's Try Squares and T Bevels.......dis 52½ %
Winterbottom's Try and Mitre.......dis 25&10 %
Bailey's Try Squares and T Bevels.......dis 25&10 %

Tacks, Brads, &c.
List of May, 1878.......dis 55 %
Shoe Nails, (new list).......dis 10 %
Double-Pointed Tacks.......dis 40&5 %

Tap Borers.
Common and Ring.......dis 20&10 %
Ives' Tap Borers.......dis 10&10 %
Enterprise Mfg. Co.......dis 20 %

Tapes, Measuring.
American.......dis 25 %
Spring Tapes.......dis 25&10 %

Thermometers.
Tin Case.......dis 70 %

Tobacco Cutters.
Enterprise Mfg. Co. (Champion).......dis 20 %
Wood Bottom.......℘ doz $12.00, dis 40@45 %
All Iron.......℘ doz $10.50, dis 50&5 %
Nashua Lock Co.'s.......℘ doz $18.00, dis 50 %

Toe Calks.—Winsted.......℘ ℔ 10c, dis 10 %

Tinners' Tools and Machines.
Machines (P. S. & W.).......dis 5@10 %
Tools (P. S. & W.).......dis 15@20 %

Traps.
Game, Newhouse.......dis 33⅓ %
" Newhouse Pattern.......dis 60&10 %
" Blake's Patent.......dis 50 %
Mouse, Wood, Choker.......℘ doz holes, 12c
" Round Wire.......℘ doz $1.50, dis 10 %
" Cage " ....℘ doz $2.50, dis 10 %
" Catch-em-alive.......℘ doz $2.75, dis 10 %
Rat, "Decoy".......per doz $10.00, dis 10 %

Trowels.
Lothrops Brick and Plastering.......dis 25 %
Reed's Brick and Plastering.......dis 15 %
Disston's Brick and Plastering.......dis 20 %
Peace's Plastering.......dis 30 %
Clement & Maynard's.......dis 20 %
Rose's Brick.......dis 15 %
Brades' Brick.......dis 20 %
Worrall's Brick and Plastering.......dis 20 %
Garden.......dis 5 c %

Triers.
Butter and Cheese.......dis 25 %

Vises.
Solid Box.......List of July 1, '79, dis 35 %
" Peter Wrights.......15½c
Parallel, Parker's.......dis 20 %
" Wilson's.......dis 50 %
" Howard's.......dis 25&10 %
" Merrill's.......dis 20 %
" Sargent's.......dis 66⅔&10 %
" Trenton.......dis 25 %
" Backus and Union.......dis 25 %
" Fisher & Norris.......dis 15&10 %
" Stevens'.......dis 25 %
" Simpson's Adjustable.......dis 25&10 %
"Family," List.......net
Saw Filers, Bonney's.......℘ doz $24.00, dis 20&10 %
" Stearn's.......dis 20&10 %
" Hopkins'.......℘ doz $17.50 dis 10 %
Lowell Hand Vises.......dis 20 %
Richardson's Vise and Anvil.......dis 25 %

Ventilators.
Protective (upper) per foot, $1.00 } dis 25 %
(lower) " 1.50

Washer Cutters.
Smith's Patent.......℘ doz $12.00 dis 10 %
Johnson's.......℘ doz $12.00, dis 35 %
Penny's.......℘ doz $14.00 and $16.00, dis 45 %
Appleton's.......℘ doz $8.00, dis 20&10 %

Washers.—See Nuts and Washers.

Weather Strips.
Protective Ventilator Co.'s.......dis 25 %

Well Wheels.—Revised list.......dis 60&10 %

Window Balances.
Hugunin's.......$25.20 gross, net

Wire.
Brass and Copper....... List of July 1, 1878 dis 25@30 %
Bright and Annealed.......Nos. 0 @ 18, dis 57½ @ 60 %
" " ....Nos. 19 @ 26, dis 62½ @ 65 %
" " ....Nos. 27 @ 36, dis 65 @ 67½ %
Coppered.......Nos. 0 @ 18, dis 52½ @ 55 %
Galvanized, Nos. 0 to 6.......℘ ℔ 10c, dis 37½ @ 10 %
" Nos. 7 to 18.......market list, dis 37½ @ 40 %
Tinned, Nos. 0 to 18.......dis 42½ @ 47½ %
Cast Steel.......dis 25 @ 30 %
Tinned Broom Wire, Nos. 18 to 25.......dis 57½ @ 60 %
Annealed Fence, Nos. 8 and 9.......dis 60 @ 62½ %
" Grape, Nos. 10 to 14.......dis 60 @ 62½ %
Galvanized Telegraph, Nos. 7 to 9.......℘ ℔ 8½c
" " Nos. 10 and 11.......℘ ℔ 9½c
" No. 12.......℘ ℔ 10c
Fence Staples.......℘ ℔ 6 @ 6½c
" Staples, Galvanized.......9.......℘ ℔ 7 @ 7½ c
Stubs Steel Wire.......$7.00 to £ gold
Japanned Barb Fence.......℘ ℔ 13c
Galvanized " ....℘ ℔ 14c
Steel Music Wire, Nos. 12 to 27.......℘ ℔ $1.00, net
Judd's Picture Wire.......dis 80&20&10 %
Clothes Line Wire, Galvanized.......℘ coil 30 @ 40c net
Green Wire Cloth, per sq. foot, 3c @ 3¼c.......net

Wrenches.
American Adjustable.......dis 45 %
Baxter's Adjustable "S,".......dis 20 %
" Diagonal.......dis 20 %
Collins & Co.'s.......dis 45 %
Coes' Genuine.......dis 70 %
" " (Malleable).......dis 75&10 %
L. Coes' "Mechanics".......dis 70 %
Girard Standard.......dis 70 %
Girard Agl.......75 %
Davis' Patent Duplex.......new list, dis 25 %
Bemis & Call's Patent Combination.......dis 25 %
" " Merrick's Pattern.......dis 40&5 %
" " Briggs' Pattern.......dis 35 %
" " Cylinder or Gas Pipe.......dis 25&30 %
Aiken Pocket (Bright).......$6.00, dis 55&10 %
The Favorite Pocket (Bright).......per doz $8, dis 60 %
Webster's Pat. Combination.......dis 35 %

Wringers. Per doz.
Peerless, No. 0, no Cogs.......51.00
" No. 1, " 54.00
" No. 2½, with Cogs.......60.00
" No. 2, " 63.00
" No. 3, " 71.00
" No. 4, " 93.00
Unique, No. 0.......51.00
" No. 1.......54.00
Universal, XX No. 2½.......60.00
" " No. 2.......63.00
" " No. 1½.......71.00
" " No. 1.......93.00
" " No. 8.......each. 12.00
" " No. 12....... " 20.00
" " No. 18....... " 25.00
" " No. 22....... " 32.00
Crown No. 2.......54.00
" No. 2½.......63.00
" No. 3.......69.00
Eureka, No. 1.......57.00
Novelty, No. 10, with Cog Wheels.......60.00
" No. 2, " " 63.00
Excelsior, No. A, with Folding Bench.......78.00
" No. E, for Set Tubs.......66.00
Keystone No. 1, Wood Frame, no Gear.......54.00
" No. 2, Iron " " 54.00
" No. 10, Wood " Common Gear.......60.00

Stamped Tinware.—New List Dec. 1, 1878.
Common Stamped Ware.......dis 25 %
Stamped Deep and Retinned Ware.......dis 25 %

METALS.

IRON.—Duty: Bars, 1 to 1½c. ℘ ℔; Sheet, Band Hoop and Scroll, 1½ to 1⅞c. ℘ ℔; provided, that none of the above Iron shall pay a less rate of duty than 35 per cent. Pig, $7 ℘ ton; Polished Sheet, 3c. ℘ ℔; Wrought Scrap, $8 ℘ ton; Cast Scrap, $6 per ton. Railroad 70c. ℘ 100 ℔s. Boiler and Plate, 1½c. ℘ ℔.

Pig Iron—American.
Foundry No. 1.......℘ ton $19.00 @ 20.00
" No. 2.......℘ ton 17.50 @ 18.00
Gray Forge.......℘ ton 10.50 @

Scotch.
Eglinton.......℘ ton 20.00 @
Coltness.......℘ ton 22.00 @
Gartsherrie.......℘ ton 21.00 @
Glengarnock.......℘ ton [illegible]
Carnbroe.......℘ ton 19.50

Rails.
Iron, at mill.......℘ ton $39.00 @ 40.00
Steel, at tidewater.......℘ ton 45.00 @ 46.00
Old Rails.......℘ ton 24.00 @ 25.00

Scrap.
Wrought Scrap, from yard..℘ ton, nom. 24.00 @

Bar Iron, from Store.
Common Iron:
¾ to 2 in. round and square } ℘ ℔ 1.9c
1 to 6 in. x ⅜ to 1 in.
Refined Iron:
¾ to 2 in. round and square } ℘ ℔ 2.2c
1 to 6 in. x ⅜ to 1 in.
1 to 6 in. x ¼ and 5-16.......℘ ℔ 2.3c
Rods—⅝ and 11-16 round and square.......℘ ℔ 2.2c
Bands—1 to 6 x 3-16 to No. 12.......℘ ℔ 2.5c
Swedish Iron:
Ordinary sizes.......[illegible]

Sheet Iron.

	Common American	R. G. American.
Nos. 10 to 20	℘ ℔ 2¾c	3⅛
21 to 24	℘ ℔ 3c	3⅜
25 to 26	℘ ℔ 3¼c	4
27	℘ ℔ 3½c	4¼
28	℘ ℔ 3¾c	4½c
Galvanized, 14 to 20, B. B.	℘ ℔ 6¾c; 2d qual.	℘ ℔ 5½c
21 to 24, "	℘ ℔ 7¼c; "	℘ ℔ 6 c
25 to 26, "	℘ ℔ 7¾c; "	℘ ℔ 6½c
27 "	℘ ℔ 8¼c; "	℘ ℔ 7 c
28 "	℘ ℔ 9 c; "	℘ ℔ 7½c

Patent Planished.......℘ ℔ A. 10c; B, 9c
Russia.......℘ ℔ Nos. 8 to 14, 11¼@12c
American Cold Rolled.......℘ ℔ 3¾@4½c

COPPER.—Duty: Pig, Bar and Ingot, 4c; Old Copper 4c ℘ ℔; Manufactured (including all articles of which Copper is a component of chief value), 45 % ad valorem.
American Ingot.......℘ ℔ See Trade Report.

Sheathing, Braziers' Copper, Bolts, &c.
Braziers' Copper, ordinary sizes, over 16 oz., ℘ sq. ft.......℘ ℔ 26c
Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., ℘ sq. ft.......℘ ℔ 27c
Braziers Copper 10 oz and 12 oz., ℘ sq. ft.......℘ ℔ 29c
" Lighter than 10 oz. ℘ sq. ft.......℘ ℔ 31c
Circles less than 84 in. diameter.......℘ ℔ 28c
Circles 84 in. diameter and over.......℘ ℔ 31c
Segment and Pattern Sheets.......℘ ℔ 27c
Locomotive Fire Box Sheets.......℘ ℔ 26c
Sheathing Copper, over 12 oz. ℘ sq. ft.......℘ ℔ 25c
Bolt Copper.......℘ ℔ 26c
Copper Bottoms.......℘ ℔ 26c
No Copper is Sheathing except 14x48 inches and not to exceed 34 oz. to the sq. ft.

Tinning.
14x48, by the case.......℘ sheet 6c
14x48, less than case.......℘ sheet 8c
For tinning both sides, double the above amount

O'Neill's Patent Planished Copper.—Net.
14x48.
14 and 16 oz. and heavier..℘ ℔ 31c By the case. ℘ ℔ 30c
12 oz. and lighter.......℘ ℔ 34c " " ℘ ℔ 33c
Boiler Sizes.
7 in., 14x52. 8 in., 14x56. 9 in., 14x60.
14 and 16 oz. and heavier. ℘ ℔ 33c By the case. ℘ ℔ 32c
(And all sizes not over 20 in. wide.)
30x60.
14 and 16 oz. and heavier.......℘ ℔ 35c
12 oz.......℘ ℔ 38c

Brass.
Brown & Sharp's Gauge the Standard for Metal; Old English Gauge the Standard for Wire.
Brass Manufacturers' Price List.—dis nominal.
July 1, 1878.
Cash prices for Roll and Sheet Brass. For less quantity than 100 ℔s. add 3c ℘ ℔.

High Brass.
All Nos. not thinner than to No. 28, wider than 2 in., not wider than 14 in.......25c
All Nos. to No. 28, inclusive, and widths over 14 to 20 in., inclusive.......30c
All Nos. to No. 28, inclusive, and widths over 20 to 30 in., inclusive.......33c
½c. ℘ ℔ advance on each No. above Nos. 28 to 38, inclusive.
All Brass thinner than No. 38 is Platers' Brass, at...48c
Sheets 24x48, and all sheets cut to particular sizes and lengths under 30 in., in width wider than 2 in. 32c
Printers' Rules.......40c
Sheets wider than 30 in. and under 40 in.......42c
" 40 in. and over.......45c
Circular Sheets, in diam. from 4 in. to 14, inclusive.35c
" " over 14 " 20, " ..40c
" " " 20 " 30, " ..44c
" " " 30 " 40, " ..50c
" " " 40 in.......54c

Low Brass.
4c ℘ ℔ more than High Brass,
Gilding Metal, 8c ℘ ℔ more than High Brass.
Platers' or Gold Metal { In Bars.......43c
Sawed.......46c
Planed or Polished.......49c

For Slitting.
Metal in width 2 in. to ⅛ in. to No. 28, inclusive, 1c. ℘ ℔ advance.
Metal, in width 2 in to 1 in., thinner than No. 28, 2c. ℘ ℔ advance.
Metal, in width 1 in. to ⅛ thinner than No. 28, 3c ℘ ℔ advance
Metal, in width ⅛ in. to ¼, inclusive, not thinner than No. 28, 2c. ℘ ℔ advance.
Metal, in width ½ in. to ¼ thinner than No. 28, 5c. ℘ ℔ advance.
Metal, ¼ in. in width and less, 10c. ℘ ℔ advance.
Any of the above widths cut to particular lengths, add 7c. ℘ ℔.

German Silver Market Metal and Wire.

	Market Metal.	Wire.
4 per cent., 12 inch, to No. 26	$0.52	$0.70
6 " " " "	.56	.76
10 " " " "	.64	.88
15 " " " "	.74	1.03
18 " " " "	.80	1.12

German Silver Sheets over 12 in. wide and weighing more than 10 ℔s., $2.00 ℘ ℔.
Advance 2c. for each additional inch in width above 12 in., and 2c. ℘ ℔ on each No. thinner than Nos. 26 to 36, inclusive
All German Silver thinner than No. 36 is Platers, at 50c ℘ ℔ additional.
German Silver Scrap one-half less than net price of 12 in. Market Metal. German Silver Turnings, Filings and Chips, half the price of Scrap.

Brass and Copper Wire.

	High Brass.	Low Brass.	Gild'g and Copper.
No. 0 to 20	$0.28	0.32	$0.38
No. 21	.31	$ .35	.41
No. 22	.32	.36	.42
No. 23	.33	.37	.43
No. 24	.35	.39	.45
No. 25	.38	.42	.48
No. 26	.40	.44	.50
No. 27	.43	.47	.53
No. 28	.47	.51	.58
No. 29	.50	.54	.61
No. 30	.53	.57	.67
No. 31	.57	.61	.73
No. 32	.61	.65	.79
No. 33	.65	69	.88
No. 34	.69	.73	.98

Spring Wire 2c ℘ ℔ advance.
Flat, Square and Half Round Wire 5c ℘ ℔ advance on Round Wire.
Fancy Wire not less than 10c ℘ ℔ advance of Round Wire.
Brass Rods, No. 8 and larger not less than 2 feet lengths, 33c.
Wire straightened and cut, smaller than No. 8, and not less than 2 feet lengths, 38c.
Wire and Rods less than 2 feet lengths, special rates.
Twelve cents per ℔ extra for spooling on 1 ℔ spools.

Miscellaneous.
Common Plain Brass Pail Ears.......$0.36
Brass Door Rail.......38

Scrap.—net.
High Brass Scrap.......11c
Low " 13c
Gilding.......15c
Turnings, Filings and Chips half the price of Scrap.
Terms—Net cash. Interest to be added after thirty days.

Tubing.—dis 10 % ℘ ℔
Plain to No. 20 inclusive, above ¼ in. to 3 in.......$0.38
" above 3 in.......48
Nos. 21, 22, 23, two cents advance on List for each Number.
Nos. 24, 25, 26, four cents advance on List for each Number.
Above No. 26, special rates.
Plain, ¼ inch.......65
" 3-16 " 1.05
" ⅛ " 1.55
All Mandrel Drawn Tubes, 5 cents advance on List Prices.
Fancy Tubing to No. 20.......45c
English, Scotch and Extra Patterns Fancy Tubing to No. 20.......50
Tubing Sawed or Cut 2 to 4 feet long, 2 cents advance on List.
Add to 2 cents ⅛ cent for each additional cutting under 2 feet.
All Mandrel Drawn Tubes under ⅜ in., 25 cents per pound advance.

Zinc Tubing.—net.
Plain.......22
Fancy.......28
Scotch and Extra Patterns.......31

German Silver Tubing.—dis 10 %
4 Per cent.......75
6 " 85
9 " 1.00
12 " 1.15
15 " 1.20
16 " 1.35
18 " 1.45
20 " 1.55

STEEL.—Duty: Bars, Ingots, Sheets and Coils, valued at 7 cents ℘ ℔., or under, 2¼ cents; over, 7 cents, and not above 11, 3 cents ℘ ℔; over 11, 3½ cents ℘ ℔, and 10 % ad val. Railway Bars, 1¼ cents ℘ ℔: Railway Bars, in part Steel, 1 cent ℘ ℔. Provided, that Metal cemented, cast or made from Iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as

American Cast Steel.
Tool.......15c
Spring.......7c
Homogeneous.......12½c
Boiler Plate.......8c
Tire.......4½c
Machinery (round and square).......9c
File.......9c
Sheet.......11 @ 10c
Saw Plate, mill and mulay.......14 @ 16½c
" gang and X cut.......13 @ 14c
" circular as to size.......18 @ 30c

English Steel.—
" Best Cast.......℘ ℔ 15½c
" Extra Cast.......℘ ℔ 16½c
" Round Machinery, Cast.......℘ ℔ 10c
" Swaged, Cast.......℘ ℔ 18c
" Best Double Shear.......℘ ℔ 15½c
" Blister, 1st quality.......℘ ℔ 13c
German Steel, Best.......℘ ℔ 11c
" 2d quality.......℘ ℔ 10c
" 3d quality.......℘ ℔ 9c
Sheet Cast Steel, 1st quality.......℘ ℔ 15½c
" 2d quality.......℘ ℔ 14½c
3d quality.......℘ ℔ 12½c

ANTIMONY.......12 to 12½

LEAD.—Duty Pig $2 ℘ 100 ℔s: old Lead, 1½c ℔ ℘ Pipe and Sheet, 2½c ℘ ℔.
American.......4½c @ 4¾c
Bar.......5c dis 10 %
Pipe.......5½c. dis 10 %
Tin Lined Pipe.......12c, dis 10 %
Sheet.......6c, dis 10 %
Shot.......Drop 6¾c, Buck, 7¾.
Chilled Shot.......8c,
Shot in lots of 2000 lbs.......dis 10 %

Babbitt Metal.
N. P. U.......℘ ℔ 6 @ 7c
A 20c: B. 16c: C. 12c: D 10c ℘ ℔.

TIN.—Duty: Plates, Sheets, Tagger and Terne, 1.1c ℘ ℔; Electro-galvanized Plates, 2c ℘ ℔; Manufactures of, not enumerated, 35 per cent. ad. val. Bars, Block and Pigs free. Banca, subject to duty of 10 per cent
Banca.......℘ ℔ 18c
Straits.......℘ ℔ 16
English.......℘ ℔ 15

Tin Plates.
I C 10x14 / 14x20 } Prime Charcoal.......$6.25 @ 6.50
I C 12x12 " ....6.50 @ 6.75
I X 10x14 / 14x20 } Prime Charcoal.......8.25 @ 8.50
I X 12x12 " ....8.50 @ 8.75
D C 12½x17 " ....5.75 @ 6.00
D X 12½x17 " ....7.75 @ 8.00
For each additional X add.......2.00

Coke Tin Plate.

	Best.	2d quality.	Ordinary
I C 10x14 / I C 14x20	$5.75	5.50	5.00 @ 5.25
I C 12x12	6.00	5.75	5.25 @ 5.50

Terne Plate.

	Prime Char.	2d qual.	Coke.
I C 14x20	$5.75 @ 6.00	5.50 @ 5.62½	5.00 @ 5.25
I X 14x20	7.50 @ 7.75	....	....
I C 20x28	12.25 @	11.50 @ 11.75	10.00 @ 11.50
I X 20x28	..... @ 16.00	....	....
I C 20x200	..... @ 18.75	....	....

I C 14x20 M. F. Brand.......$7.37½ @ 7.50

SOLDER.......No. 1, 9c @ 10c No. 2, 8½c

SPELTER—Duty: In Pigs, Bars and Plates, $1 ℘ 100 ℔s.
American, cash.......5¼ @ 5½c
Bergen Port from Lehigh Ore.......9c
Lehigh, on spot.......9c

ZINC.—Duty: Pig or Block, 1.50 ℘ 100 ℔s. Sheet, 2½c ℘ ℔.
Sheet, Cask.......6⅛
" Open.......6¾ @ 7

Paper Stock, Old Metals, &c

(Dealer's Selling Price.)
Canvas linen.......4 @
White cotton, new.......5½ @
" " No 2.......2¾ @
White linen rags, No. 1.......4 @
" " No. 2.......2 @ 2¼
Seconds.......1½ @ 1⅞
Mixed woolens.......2½ @ 3⅛
Soft woolens.......9 @
Gunny bagging.......3⅛ @
Jute Butts.......3 @ 3⅛
Kentucky bagging.......4½ @
Waste paper and scraps.......@ 1
Rope cuttings.......1½ @ 3
Kentucky bale rope.......4 @ 4½
Grass rope.......@ 2¾
Tarred shaking.......1½ @
Hard White Shavings, No. 1.......3½ @
Soft " " No. 1.......3 @
White Shavings, No. 2.......2¼ @
Mixed Shavings, part white.......2¼ @
Imperfections, No. 2, best folded sheets.......3¼ @
" No. 1, Heavy Stock.......3½ @
Book Stock.......2¾ @
" " Heavy.......3 @
" " Light.......1½ @
Newspapers.......1¾ @ 1⅞
Prints.......1¼ @
Pure Manilas.......1⅞ @ 2
Bogus Manilas and Hardwares.......⅝ @ 1
Commons.......40 @
Binders' Board Cuttings.......80 @
Straw Board Cuttings.......60 @
Woolen Tailor Clips.......13 @ 14
Satinet " ....2 @ 2½

Old Metal.
Copper, heavy.......14 @ 14½
Copper Bottoms.......12 12½
Yellow Metal.......10 @
Brass, light.......8½ @
" heavy.......10 @
Heavy Composition.......13 @
Old Lead, solid.......3½ @ 3⅝
Tea Lead.......2½ @ 2⅝
Zinc.......3 @ 3½
Pewter No 1.......11 @ 11½
" No. 2.......8½ @
Wrought Iron.......per ton $20 00
Machinery Iron.......per ton 13.00
Light Iron.......per ton 11 00
Stove Plate.......per ton 10.50
Grate Bars.......per ton 5.00

Paints, Oils, &c.

Paints.
Black Lamp, Coach Painters.......℘ ℔ 20c
" " Ordinary.......6c
" Ivory Drop, fair.......12 @ 15c
" " best.......29c
Black Paint, in oil.......kegs, 8c asst'd cans, 11c
Blue, Prussian, fair to best.......40 @ 55c
" " in oil.......[illegible]
Blue Chinese dry.......83
" Ultramarine.......18 @ 30c
Brown, Spanish.......1¼c
" Van Dyke.......10@12c
Carmine, 40.......combination price
Green, Chrome.......15 @ 23c
" " in oil.......14 @ 18 @ 25c
" Paris.......good 25c; best, 30c
" " in oil.......30c; " 45c
Iron Paint, Bright Red.......℘ ℔ 2½c
" Red.......℘ ℔ 2c
" Brown.......℘ ℔ 1½c
" Purple.......℘ ℔ 3c
" Ground in Oil, Bright Red.......℘ ℔ 5½c
" " " Red.......℘ ℔ 5c
" " " Brown.......℘ ℔ 4½c
" " " Purple.......℘ ℔ 6c
Mineral Paints.......1¼ @ 4c
Orange Mineral.......11c
Red Lead, American.......6c
" " English.......9½c gold
" Venetian (N. C.) dry.......$1.65 @ $1.70
" " in oil.......asst'd cans, 11c; kegs, 8c
" Indian dry.......9 @ 12c
Rose Pink.......10 @ 13c
Sienna, American, Raw.......4c
" Burnt.......8½c
" " in oil.......10 @ 16 @ 20c
" Raw " ....11 @ 15 @ 25c
Umber, Burnt.......4 @ 8c
" " in oil.......9 @ 12 @ 16c
" Raw.......3½ @ 7½c
" " in oil.......10 @ 16 @ 18c
Vermillion, Chinese.......90c, gold
" English.......55c, gold
" Trieste.......1.10, gold
" American, Common.......15c
White Lead, American, pure dry.......6 to 7c
" " " in oil.......7c to 7½c
White, Paris, English, prime.......in bbls. 2 @ 2½c
Yellow Ochre, French.......$1.75
" " " in oil...asst'd cans, 11c; kegs, 8c
" " Vermont.......in casks 1½c
Yellow Chrome.......17 @ 27c
" " in oil.......14 @ 18 @ 25c
Zinc White, American No. 1, dry.......7c
" " No. 1, in oil.......9c
" French (Paris).......8 @ 10c
" " in oil.......@ 10c

Oils.
Linseed, Raw, in casks and bbls.......℘ gal. 64c & 65c
" Boiled. " " ....69c & 70c
Bleached Whale.......℘ gal. 47c
" Sperm.......℘ gal. 95c
" Elephant.......61c
Signal.......45c
Prime Lard.......49c
No. 1 " 46c
West Virginia.......12c @ 18c
Drilling.......38c
Empire Cylinder.......65c
Miners' Oil.......30 to 38c
Fish Oil, pressed.......30c
Neatsfoot.......70c
Tallow.......60c
Machinery.......40c
Engine.......50c

Sundries.
Asphaltum.......[illegible]
Benzine.......℘ gal, 16c
Chalk.......¾c
" Block.......¾c
Dryer, Patent, Am'n.......ass't cans, 10½c; keg, 9c
Frostings.......50c
Glue, White.......33 @ 41c
" Sheet.......20c
Glaziers' Points, Zinc.......[illegible]
Gum, Copal.......35c
" Damar.......25c
" Shellac, English.......[illegible]
" " dark.......[illegible]
Litharge, English.......9c @ 10
Mineral Wool.......℘ ℔ 1¼ @ 1½c
Pumice Stone, selected Lumps.......4 @ 6c
" powdered.......2½c
Putty, in bladders.......2¼c
" in bulk.......[illegible]
Rotten Stone, soft, English.......[illegible]
Spirits Turpentine.......25c
Whiting Spanish.......¾c

Glass.

French Window Glass.

Prices current per box of 50 feet.

Single Thick.—Discount 60&20&2½ %

Sizes.	1st.	2d.	3d.	4th
6 x 8 to 10 x 15	$8.00	$6.75	$6.25	$5.75
11 x 14 to 16 x 24	8.75	8.00	7.00	7.00
18 x 22 to 20 x 30	11.25	10.50	9.75	8.75
15 x 36 to 24 x 30	12.75	11.50	10.00	
26 x 28 to 24 x 36	13.50	12.25	11.25	
26 x 36 to 26 x 44	14.75	13.75	11.75	
26 x 46 to 30 x 50	16.25	15.00	13.00	
30 x 52 to 30 x 54	17.25	16.00	13.50	
30 x 56 to 34 x 56	18.75	16.75	15.00	
34 x 58 to 34 x 60	19.50	18.00	16.00	
36 x 60 to 40 x 60	21.00	19.50	18.00	

Double Thick.—Discount 70&10&5 %

Sizes.	1st.	2d.	3d.	4th.
6 x 8 to 10 x 15	$12.00	$11.00	$10.00	$9.25
11 x 14 to 16 x 24	14.75	13.75	12.75	11.75
18 x 22 to 20 x 30	19.00	17.75	16.00	
15 x 36 to 24 x 30	21.50	19.25	16.50	
26 x 28 to 24 x 36	23.00	20.75	18.25	
26 x 36 to 26 x 44	25.00	23.00	19.25	
26 x 46 to 30 x 50	27.00	25.00	21.25	
30 x 52 to 30 x 54	28.50	26.00	22.25	
30 x 56 to 34 x 56	30.00	27.75	24.75	
34 x 58 to 34 x 60	31.75	30.00	27.00	
36 x 60 to 40 x 60	35.50	32.50	30.25	

Sizes above 40 x 60—$10.00 per box extra for every five inches.
An additional 10 per cent. will be charged for all Glass more than 40 inches wide. All sizes above 52 inches in length, and not making more than 81 united inches, will be charged in the 84 united inches bracket

Steel.

R. H. WOLFF & CO.,

MANUFACTURERS, IMPORTERS, EXPORTERS & GENERAL MERCHANTS.

MANUFACTURERS OF

CAST STEEL WIRE for all Purposes, Special Wire, Market Steel Wire, Prime Coppered Spring Wire, and of all Kinds of Furniture Springs, &c.

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STEEL AND FILES,

Hammers, Anvils, Vises, Blacksmiths' Tools.

WARRANTED CAST STEEL. Specially adapted for Dies, Punches, Turning Tools, Drills, &c.

ALSO, THE WORLD-RENOWNED

IMPROVED MILD CENTERED CAST STEEL.

Specially adapted for Taps, Reamers, Milling Tools, &c. *Warranted not to crack in hardening Tools of any size.*

SHEET, GERMAN, MACHINERY, SPRING AND EVERY OTHER DESCRIPTION OF STEEL.

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CRESCENT STEEL,

In Bars, Sheets, Cold-Rolled Strips, &c.

Polished, Compressed Drill Rods and Wire,

Warranted equal to any imported in *quality, finish and accuracy.*

Also Common Grades.

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For Drills, Cold Chisels, Tools, Taps, Dies, &c.

COLD ROLLED STEEL for Clock Springs, Corsets, &c.

SHEET CAST STEEL for Springs, Saws, Welding and Stamping Cold, &c.

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BESSEMER STEEL

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Iron Rail and Fastenings,

SPRING STEEL

AND

WIRE OF ALL KINDS,

Steel Horse Shoes, Tire, Axles and other Forgings,

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BEST REFINED CAST STEEL.

Warranted most superior for TOOLS AND GRANITE ROCK DRILLS

A full assortment of this universally approved OLD BRAND and other Steels for sale by

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Samples furnished for trial. Quality guaranteed equal to any.

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R. MUSHET'S

Special Steel

FOR

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Turns out at least **double work** by increased speed and feed, **and cuts harder metals** than any other Steel. Neither hardening nor tempering required.

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DUPONT'S

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The most popular Powder in use.

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Nos. 1 (coarse) to 4 (fine), unequaled in strength, quickness and cleanliness; adapted for Glass Ball and Pigeon Shooting.

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Nos. 1 (coarse) to 3 (fine), burning slowly, strong and clean; great penetration; adapted for Glass Ball, Pigeon, Duck and other shooting.

DUPONT'S EAGLE RIFLE,

A quick, strong, clean Powder of very fine grain for Pistol shooting.

DUPONT'S RIFLE, Fg, "Sea Shooting,"

FFg and **FFFg.**—The **Fg** for long range rifle shooting, the **FFg** and **FFFg** for general use, burning strong and moist.

Also all kinds of Sporting, Mining, Shipping and Blasting Powders of all sizes and descriptions. Special grades for **export.** Also, Musket, Cannon, Mortar and Mammoth Powder, U. S. Government standard. Powder manufactured to order of any required grain or proof. Agencies in all cities and principal towns throughout the U. S. Represented by

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N. B.—Use *none* but **Dupont's Fg** or **FFg** Powder for long-range Rifle shooting.

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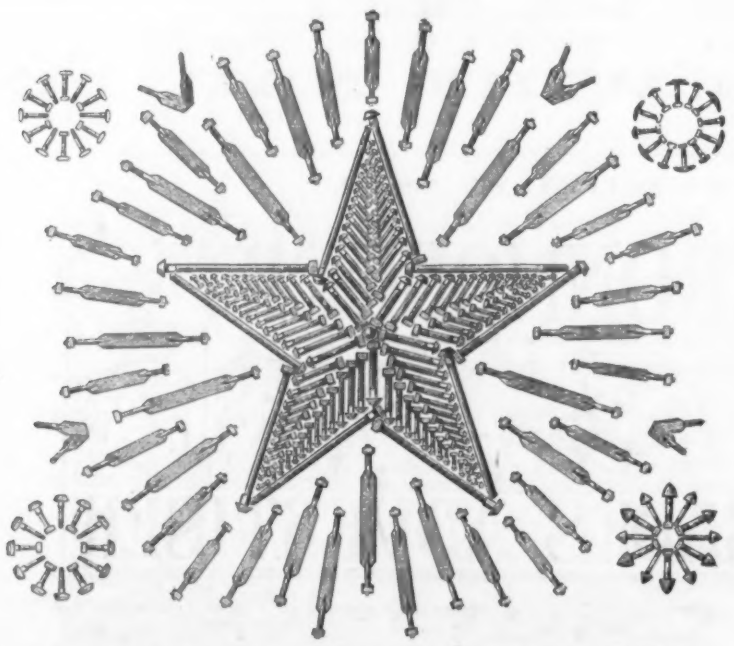
Gouges of all lengths and circles beveled inside or outside. Nail Sets, Scratch and Belt Awls Caise Handles of all kinds. Carving Tools. Also small Boxes of tools of best quality.



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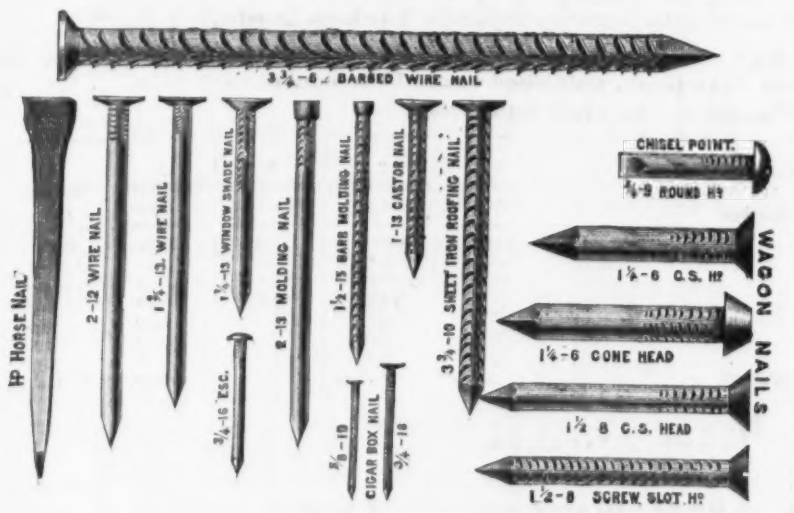

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Steel, Iron and Brass Nails and Barbed Nails

Of every kind.

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Our agents, Graham & Haines, 113 Chambers Street, New York, carry a full line of our goods, and will be pleased to serve you at Factory prices.

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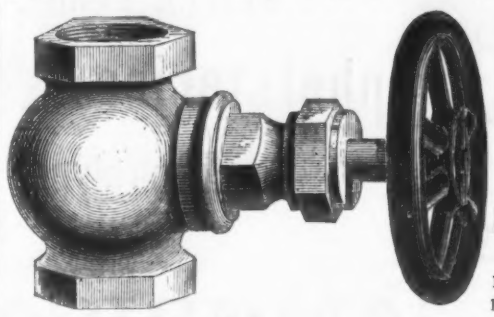
MANUFACTURERS OF

BRASS COCKS AND VALVES,



For STEAM, WATER and GAS.

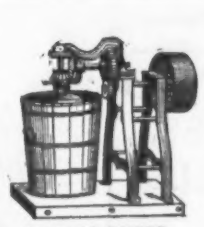
Iron Pipe and Fittings.

PLUMBERS' MATERIALS

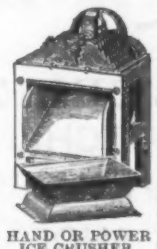
New Illustrated Catalogue and Price List sent by express to the Trade on application.

Factory, Paterson, N. J. 56 John Street, N. Y.

HAND FREEZER.
2 to 25 qts.
$3.50 to $25.00



HAND OR POWER.
25 and 50 qts.
$75.00 and $175.00



HAND OR POWER ICE CRUSHER.
$75.00.

SANDS' TRIPLE MOTION WHITE MOUNTAIN ICE CREAM FREEZERS.

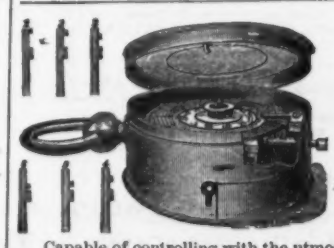
Galvanized iron outside, tin inside. No *secretions of oxide of zinc* need be feared in the use of this Freezer. Simple in construction, perfect in results. Send for descriptive circular and discounts of this celebrated Freezer. Address **WHITE MOUNTAIN FREEZER CO., Laconia, N. H.**

COULTER, FLAGLER & CO.,

87 Chambers and 69 Reade Sts., New York,

Hardware Manufacturers' Warehouse.

Office and Warehouse of Union Hardware Co.; Rugg Mfg. Co., Draw Knives, Chisels, &c.; Deuse Bros., Bits, Corkscrews, &c.; Richardson Bros., Saws of all kinds; Brooks Edge Tool Co.'s Axes, Hatchets, &c.; M. Price, Hatchets, &c.; J. & W. Rothery, Extra Hand Cut Files; L. D. Frost, Carriage Bolts, Refined and Norway Iron; Cowles Hardware Co., Screwdrivers, Mincing Knives, &c.; Rider, Wooster & Co., Anti-Friction Barn Door Hangers, &c.; H. B. Hawley, Shears of all kinds; Walden Knife Co., Pocket Cutlery; American Screws; N. Y. Anti-Friction Metal Co.'s Babbitt Metals; Howard, Razor Strops; C. Forchner, Spring Balances; P. Lowentraut & Co., Dividers, Calipers, &c.; Shepard Hardware Co., Fluters, Blind Hinges, &c.: Saxton & Amedon, Braces, all kinds; Berlin Bros. Mfg. Co., Bells, all kinds; B. H. Parsons & Bro., Pliers, Nippers, &c.; C. L. Griswold, Cast Steel Bits; Lancaster Lock Works, Jail Locks.



BUERK'S Watchman's Time DETECTOR.

IMPORTANT FOR ALL LARGE CORPORATIONS AND MANUFACTURING CONCERNS.

Capable of controlling with the utmost accuracy the motion of a watchman or patrolman as the same reaches different stations of his beat. The instrument is complete in itself, portable and as reliable as the best lever watch. It requires no fixture or wires communicating from room to room, as is the case with the ordinary watch clocks. A small, inexpensive stationary key is alone required at each station. The instrument will, in all cases, be warranted perfect and satisfactory.

N. B.—The suit against Imhaeuser & Co., of New York, was decided in my favor, June 10, 1874. Another suit has been decided against them and a fine assessed Nov. 11, 1876, for selling contrary to the order of the Court. Persons using clocks infringing on my Patent will be dealt with according to law.

J. E. BUERK, Proprietor,

P. O. Box 979. *No. 230 Washington Street, Boston.*

☞ In sending for circular or ordering the above, please mention this paper. ☜

LIGHTNING HAY KNIVES,

WEYMOUTH'S PATENT.

This knife is the best in use for cutting down hay and straw in mow and stack, cutting fine feed from bale, cutting corn stalks for feed, cutting peat and ditching marches.

The blade is best cast steel, spring temper, easily sharpened, and is giving *universal* satisfaction. A few moments' trial will show its merits, and parties once using it are unwilling to do without it. Its sales are fast increasing for export as well as home trade, and it *seems destined* to take the place of all other Hay Knives.

They are nicely packed in boxes, one dozen each, of 50 lbs. weight, suitable for shipping by land or water to any part of the world.

Manufactured only by

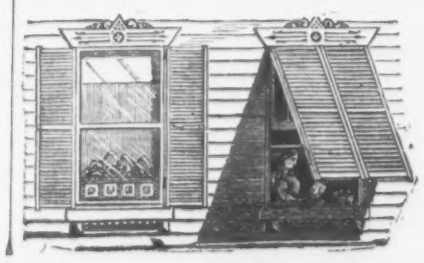
HIRAM HOLT & CO.,

East Wilton, Franklin Co., Maine.

For sale by the Hardware Trade generally.

SEMPLE & BIRGE MFG. CO., Agents at St. Louis.

Dearborn's Pat. Adjustable Blind Awning Fixtures.



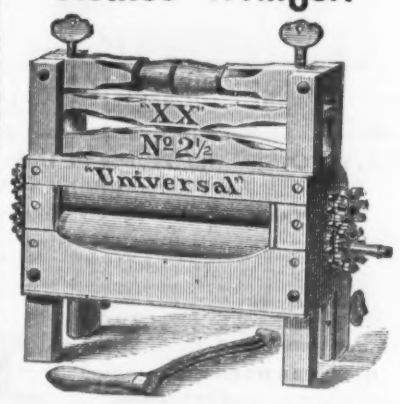
Either old or new Blinds thus fitted can be opened in the usual way or used as an awning at pleasure.

For particulars address the sole manufacturers,

BOSTON BLOWER CO.,

Boston, Mass.

THE "OLD RELIABLE" UNIVERSAL Clothes Wringer.



Improved with Rowell's Double Cog-Wheels on both ends of each roll.

Over 500,000 sold!

And now in use, giving "Universal" satisfaction

EVERY WRINGER WARRANTED.

Be sure and inquire for the "Universal."

Sold by the **Principal Jobbers in Hardware and House-Furnishing Goods** everywhere.

☞ Special rates given for export.

Metropolitan Washing Machine Co.

32 Cortlandt St., New York.

WM. S. CARR & CO.

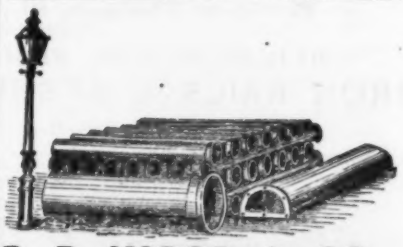
Sole Manufacturers of

CARR'S PATENT Water Closets,

PUMPS, CABINET WOOD WORK, &c.

106, 108 & 110 Centre Street,

Factory, Mott Haven. - - - NEW YORK.



R. D. WOOD & CO.

Philadelphia,

Manufacturers of

Cast Iron Pipe

FOR WATER AND GAS.

Lamp Posts, Valves, &c.,

Mathew's Pat. Anti-Freezing Hydrants.

400 CHESTNUT STREET.

The Patent Combined

Dinner-Pail and Lantern.

The most perfect Dinner Pail in the world. Hot coffee for dinner and a Lantern at night.

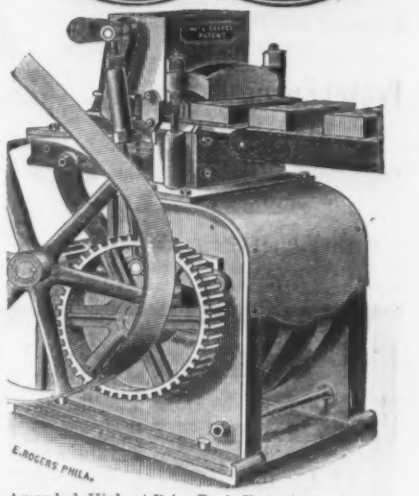
Manufactured by JOS. HAIGHT, PORT CHESTER, N. Y

Sent by express on receipt of $1.00. Special attention given to export orders. Traveling Agents Wanted.

GREGG BRICK MACHINES

AMONG THE

"Masterpieces Centennial Exposition, 1876."



Awarded Highest Prize Paris Exposition, 1878. The above is a cut of Gregg's No. 2 Brick Machine, simple, strong and efficient, for making and re-pressing bricks. Gregg's Triple Pressure Brick Machines. Gregg's Combination Brick Machines, Gregg's Steam Power Re-pressing Machines, Gregg's Hand Power Presses. Agents wanted in every city and town. Send for catalogue.

GREGG BRICK CO.,

402 Walnut st., Philadelphia, Pa.

PHILADELPHIA.

(Corrected weekly by Lloyd, Supplee & Walton).

Terms, 30 days. For 60 or 90 days. Interest added at 10 per cent. per annum.

Anvils.
Peter Wright's, ₩ lb, gold.....10½c
over 250 lbs.....11c net
Wilkinson's, ₩ lb, gold.....11c. net
Eagle (American).....9 cents per lb—dis 20%

Apple Parers.—
Reading No. 72.....per doz $ 5 00 net
" " 74....." 6 00 net
" " 75....." 7 00 net
" " 78....." 7 50 net
Peach Parers....." 10 00 net
Lit le Favorite, corer and slicer....." 7 50 net
Lots of 10 to 25 dozen special price.

Axes.—
Mann's Red Warrior .....Per doz. $8 00 @ 8 50 net
Red Indian....." 8 00 @ 8 50 net
Red Chieftain, bevelled....." 8 50 @ 9 00 net
Crown Prince....." 8 50 @ 9 50 net

Augers and Auger Bits.—
Bates' Nut Augers. .....dis 50 @ 55 %
Cook's Augers.....dis 50 @ 50&5 %
Watrous' Ship Augers.....dis 15 %
Benjamin Pierce Auger Bits.....dis 40 %
Griswold Auger Bits.....dis 50 @ 55 %
Cook's " " .....dis 50 @ 50&5 %
Jennings' " " .....dis 10&10 %
Romney's Pat. Hol. Augers, list $48 ₩ doz...dis 25&10 %
Stearns' Pat. Hol. Augers " $48 " ...dis 25&10 %

Balances.—
Light and "Common".....dis 25&10 %

Bells.—
Revin Bros. Mfg Co. Light Hand Bells.....dis 70 @ 75 %
Swiss Pattern Hand Bells.....dis 50 @ 50&10 %
Connell's Door Bells.....dis 50 @ 50&10 %
Gt. Western & Kentucky Cow, new list. ...dis 50&10 %

Bolt and Rivet Clippers.
Chambers' No 1, for ⅜ bolts, each ...$ 7 50
" " 2, " ⅝ " ... 9 00 } dis. 25 %
" " 3, " ¾ " .. 12 00 }

Boring Machines.—
Upright, with Augers.....List $9 00 dis 40&10 %
" without Augers .....$ 5 50 dis 40&10 %
Angular, with Augers.....$ 11 00 dis 40&10 %
" without Augers.....$ 7 00 dis 40&10 %

Bolts.—Eastern Carriage Bolts .....dis 75&3 %—cash
Philadelphia " .....dis 70 %
Stanley, Wrought Shutter.....dis 50 %

Braces.—Barber's.....dis 40&5 %
Rackus.....dis 50 @ 50&10 %
Spoonard.....dis 50&5%
American Ball.....dis 35 %

Butts.—Cast Fast Joint, Narrow.....dis 60&10 %
" " Broad.....dis 67½10 %
Cast Loose Joint, Narrow.....dis 50&10 %
" " Broad.....dis 50&5 %
" Acorn, Loose Pin.....dis 70&10 %
" Acorn Jap'd.....dis 75&10 %
Mayer's Loose Joint.....dis 70&10 %
Wrought Loose Pin.....dis 50 %
" Table Hinges and Back Flaps.....dis 45 %
" Narrow, Fast.....dis 50 %
" Loose Joint.....dis 50 %

Blind Butts.
Parker.....dis 75&10 %
Clark.....dis 75&10 %
Shepard .....dis 70&10 %
Lull & Porter.....dis 66⅔&10 %
Huffer's.....dis 33⅓& 10 & 33⅓&10 %

Chains.—German Halter and Coil.....dis 40 @ 40&10 %
Galvanized Pump.....₩ lb 10c net
Best Proof Coil Chain—(English).

₩ lb.....	11¼	8¼	7¾	7¼	8¼	8¼ 7c gold
	2-16	¼	5-16	⅜	7-16	½ ⅝ in.

Chisels.—Socket Framing.....dis 65, 5&10 %
Socket Firmer.....dis 65, 5&10 %
Butcher's.....$5 00 to £ gold

Casters.—Bed .....dis 50&10 %
Plate.....dis 50&10 %

Coffee Mills.—Box and Side.....dis 25 %
Enterprise.....dis 20 %

Cutlery.—Wallen Pocket .....dis 35&5 % cash
Lander, Frary & Clark, J. Russell & Co., Lamson & Goodnow Mfg. Co. and Meriden Cutlery Co., Manufacturers' prices net.

Drawing Knives.—
Hart Mfg Co.'s .....dis 65, 5&10 %
Adjustable Handle.....dis 20 %

Fry Pans.
Tinned.....dis 50&10 @ 60 %

₩ doz..$3 50	4 00	4 50	5 00	5 50	6 50	7 50	9 00	10 00
No..... 0	1	2	3	4	5	6	7	8

Burnished.....dis 60&5 %

₩ doz..$3 00	3 75	4 25	4 75	5 25	6 00	7 00	8 00	9 00
No..... 0	1	2	3	4	5	6	7	8

Files.
Nicholson.....dis 35 %
Disston.....dis 35
Butcher.....$1 50 £ gold
Spencer.....$1 50 @ 4 75 £ gold

Fluting Machines.
Eagle—3½ in. roll.....Each $1 62½ net
" —4½ in. roll....." 2 12½ net
Crown—1½ in. roll....." 2 62½ net
" —6 in. roll....." 3 00 net
" —8 in. roll....." 5 00 net
Geneva Fluter.....dis 30 %
Favorite com. Fluter & Sad-Iron..₩ doz $30 dis 25&10 %

Hammers.
Yerkes & Plumb's.....dis 20 %

Hatchets.
Yerkes & Plumb.....dis 33⅓ %
Hunt.....dis 25 %

Hinges.
Strap and T.....dis 60&10 %

Horse Nails.

Ausable.....	30	27	25	24	23	22
" Polished & Fl'd and Blued and Pointed	31	28	26	25	24	23
Globe.....Net list	26	23	21	20	19	18
Clinton	22	20	19	18	17	
" Polished and Pointed.....	23	21	20	19	18	

Southern, all sizes.....₩ lb 14c. net
Discount on Ausable and Clinton, 20 %; Globe, net.

Locks and Knobs.
Branford.....new list, dis 6⅔&10&2 % cash
Gaylord Cabinet.....dis 25&2 % cash
United States Lock Co.....dis 35 %
American Padlocks.....dis 33⅓, 5&2 % cash
Scandinavian Pad Locks.....dis 50&10 %

₩ doz...$4 50	5 50	6 50	7 50	8 50	1 00	12 50	dis 50 %
No..... 57	58	59	60	61	62	63	
₩ doz.	$18 00		26 00		34 00		dis 50 %
No.	64		65		66		

Lanterns.—
Square Candle and Oil.....₩ doz. $2 75 @ 3 00
Tubular.....No. 0, $10 50; No. 1, 12 50 ₩ doz. net
Guards, 50 cents extra per doz. n t.

Lawn Mowers.—Pennsylvania.....dis 2 &10
Philadelphia.....dis 2 &10
Excelsior.....dis 30&10

Lawn and Garden Pumps.—
Holland Patent.....List 5.00 dis 20 %

Mattocks.—
Long and Short Cutter.....₩ doz. $9 00 @ 9 50 net
Pennsylvania Pattern.....₩ doz. $9 50 @ 10 00 net

Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets.....dis 20 %
Stebbins' Gates .....dis 62½&10 %
Lincoln's " .....dis 62½&10 %
Landers, Frary & Clark's Petroleum.....dis 20&10 %
Brass Liquor Cocks .....dis 5 %
Cork Lined " .....dis 65 @ 65&10 %

Meat Cutters.—Dixon's.....dis 25 @ 30 %
Woodruff.....dis 25 @ 30 %
Stowe.....dis 25 @ 30 %
Hale's.....new list, dis 50&2 %
American.....dis 25 %
Stuffers.....dis 25 @ 30 %
Enterprise Stuffers.....dis 20 %

Planes.—Ohio Tool Co.....is 35 & 10 %
Bailey.....dis 25&10 %
Sciota.....dis 50 %
Auburn.....dis 35 & 10 %
New York Tool Co.....dis 50 %

Plane Irons.—Ohio Tool Co.....dis 20 & 10 %
Butcher's.....gold £, $5 50

Plumbs and Levels.
Stanley's Adjustable.....dis 45&10 %
" non-Adjustable.....dis 45&10 %

Picks.—Philadelphia.....dis 10 %
Hunt's .....dis 25 %

Pumps.—Eickford.....$7 46, dis 30&10 %

Rules—Stanley Boxwood.....dis 70&10 %
Stanley Ivory.....dis 60&10 %

Steelyards.—Hart's Pattern.....dis 60&10 %

₩ doz.....	$14 50	17 75	21 00	26 50	31 00 35 50
Lbs.....	50	100	150	200	250 300

American Pattern.....dis 25 @ 25&10 %

₩ doz.....	$5 50	7 00	9 00	10 00	11 00 12 00
Lbs.....	50	100	150	200	25 300

English Pattern.....dis 25 @ 25 %

₩ doz.....	$7 00	8 67	10 67	12 67	14 67 16 67
Lbs.....	50	100	150	200	250 300

Squares.—
Steel and Iron.....dis 50 %; full case, dis 50&10 %
Try Squares, Stanley .....dis 50&10 %
Disston's Try Squares.....dis 50&10 %

Scythes.—Golden Clipper, Damascus Blade, Boxed and Sharpened.....₩ doz. $9 00 net
Clipper No. 10, Bronzed Blade Boxed and Sharpened.....₩ doz. $7 50 net
Clipper No. 5, Painted Red, Boxed and Sharpened.....₩ doz $7 25 net

Saws—Disston's Hand, Panel and Rip.....dis 20 %
Disston's Circular.....dis 30 %
Cross-Cut No. 2, Plain Tooth..₩ ft., 45c net
" " Patent Tooth.....₩ ft., 45c. net
" " Champion Tooth.....₩ ft., 35c. net

Shovels and Spades.
Rowland.....dis 50&5 %
Oliver Ames & Sons, new list.....dis 20 %

Sad Irons.—4 to 10 lbs.....₩ lb, 2½ @ 2¾c
Mrs. Potts' Patent.....dis 33⅓ %

Stone.—Arkansas Oil Stone.....₩ lb $2 00 net
Washita Extra....." 36
" No. 1....." 20
" 2....." 16 } dis
" Slips....." 45 } 10 %
" Axe....." 20
Turkey Oil Stone No. 1....." 16½c net
" " " 2....." 10c net
" Axe Stone....." 25c net
Hindostan Oil Stone No .....₩ lb 4 @ 4½c net
" Axe Stone....." 5 @ 5½c net

Screws.
Flat Head Iron.....dis 60 %
" Brass.....dis 45 %
Round Head Brass .....dis 45 %
" Iron.....dis 30 %

Spoons.—
Plated.....dis 40 @ 40&5 %
German Silver.....dis 50&10 %
Britannia, Boardmans.....dis 65 %
" Parkers.....dis 65 %
Tanned.....dis 15 @ 20 %
" by case.....dis 20 %

Springs.—Torrey.....₩ doz $2 00 @ 2 10 net
Philadelphia .....5 in., $5 00; 8 in., $7 00 ₩ doz. dis 25 %
Chatfield.....No. 1, $3 50; 2, $4 00; 3, $5 00 ₩ doz. net
Gem Coil No. 1, Large Jap'd.....₩ doz $3 50 }
" No. 2, Medium Jap'd....." 2 50 } dis
" " No. 3, Small " ....." 2 00 }

Stocks and Dies......dis 10&5 %

Stove Polish.—Gem.....₩ gross, $4 50, dis 5 %
Dixon....." $6 00, dis 5 %
Onyx....." $4 00 @ 4 25 net

Tacks, Brads, &c.—New List.....dis 55&10 %
Shoe Nails—
4-8 and larger, 9c; 3½-8, 9½c ₩ lb New list, net
Double Pointed Tacks .....dis 40&5 %

Traps.
Genuine Oneida—Newhouse.....dis 33⅓ %
Im. Oneida—Newhouse list (1st qual.).....dis 60&10 %

Vises.—Solid Box, Trenton new list.....dis 55 %

Wrenches.—
Girard (Coe's Pattern).....dis 60&10&10&5 %
Genuine Agi.....dis 70&10&5 %
Agricultural—
₩ doz 10 in., $3 60; 12 in., $5 40 net; case dis 5 %
Coes' Genuine.....dis 60&10 %
" Pat. Wrot Bar .....dis 60&10 %
" " Mall " .....dis 75&10 %
Taft's " Wrot " .....dis 75 @ 75&10 %
Phila. Tool Co., Duplex.....dis 25 %

Wire.—
Bright or Ann'd, No. 19 to 36 .....dis 60 %
" " No. 27 to 36.....dis 67½ %
" " No. 0 to 18 .....dis 62½ %
Coppered 0 to 18.....dis 50%
Tinned Broom Wire.....dis 50%
Galvanized, No. 7 to 18 .....Market list, dis 30 %

Wringers.—Novelty No. 10.....₩ doz. $60 00 net
Novelty No. 2....." 63 00 net
Universal, No. 2½....." 60 00 net
" No 3....." 63 00 net
Peerless, No. 2½....." 60 00 net
" No. 2....." 66. 00 net

PITTSBURGH.

Merchant Iron.
Wood's Patent Planished Sheet.
1st quality (A).....10½c | 2d quality (B).....9½c
Plate Iron—3-16 to ½ in. thick.....2.8c

Galvanized Iron-Juniata.
Nos. 14 to 20.....13c | No. 27.....15c
Nos. 21 to 24.....13c | No. 28.....16c
Nos. 25 and 26.....14c | No. 29.....18c
Common and imperfect Juniata, to 50 % off. Discount, 35 to 40 %.

Roofing Iron, Corrugated or Crimped.

Galvanized Common.	Black.
No. 20.....6¼c net cash	No. 20.....3.4c
No. 21 & 22 .6¾ & 7¼ "	Nos. 21 & 22.....3.5 @ 3.8c

Bridge Iron.
Carnegie Bros. & Co.'s list.
Beams and Channels.
Solid Wrought Iron Beams, 3 to 10½ in. x 30 ft..₩ lb 2¾c
" " " " 12 in. by 25 ft..... " 2¾c
" " " " 15 in. by 25 ft..... " 2¾c
Deck Beams, 7 to 9 in. by 30 ft..... " 2¾c
Channel Bars, 1¾ to 10 in. by 30 ft..... " 2¾c
" " 12 in by 30 ft..... " 2¾c
Tee Iron.
1 in. x 1 in. to 5 in. x 3 in.....₩ lb 2.8c
Angle Iron.
Equal Sided, 1x1 to 1¾x1¾ in.....₩ lb 2.6c
" 2x2 to 4x4..... " 2.5c
Unequal Sided, 2x1¾ to 4x4..... " 2.5c
Square Root Angles, 2x2 to 3½x3½..... " 2.6c
Star Iron, 1¾x1¾ to 4x4..... " 2.6c
Sash Iron, 1¾x1¾x3-16..... " 3.25c
Miscellaneous Shapes, various shapes...₩ lb, 2.6 to 3.5c
Special prices for large lots.

Nails.
Fence and Brads.
6od to 6od.....$2.15 | 4d and 5d.....$2.90
8d and 9d.....2.40 | 3d.....3.05
6d and 7d.....2.65 | 2d.....4.90
Barrel.
⅝ in.....6.15 | 1¼ in.....3.90
⅞ " .....5.15 | 1½ " 3.05
1 " .....4.65 | 1⅝ " 3.15
Lining.
⅞ in.....6.65 | ¾ in.....8.15
Tobacco.....40 cents per keg advance on common
Clinch—All sizes.....3.90
Slating.
5d.....3.15 | 3d.....3.90
4d.....3.15 | 2d.....4.15
Finishing.
1 in.....7.15 | 1⅜ to 1¾ in.....4.15
1¼ " .....6.15 | 2 in.....3.90
1⅜ " .....4.40 | 3 " and over.....3.40
Casing and Box.
6od to 30d.....2.90 | 6d.....3.40
8d.....3.15 | 4d.....3.65
Fine Blued. | 3d.....4.15
4d.....3.90 | 2d.....4.90
Cut Spikes—All sizes.....2.40
Boat Spikes—All sizes.....2.90

Each half keg 10 cents extra.

TERMS.—Note or acceptance at 60 days; or a discount of 2 per cent. for cash, if remitted within 10 days from date of invoice. An abatement of 10 cents per keg allowed upon orders of 200 kegs or over.

Steel.
Square, Flat and Octagon Tool Steel.
⅜ to 2 in.....12c | 7-32 and 4½ 5 in.....15c
5-16 and 2⅛ to 3 in.....13c | 3 16 and 5½ to 6 in.....19c
½ and 3¼ to 4 in.....14c | 5-32 in.....23c
Single and Double Shear Nailers—Same as Tool.
Knife, Tap, Die, Mill Pick, Drill—Ordinary sizes.....12c
Machinery Steel—Round.
⅜ to 2 in.....7c | 7-32 and 4½ 5 in.....10c
5-16 and 2⅛ to 3 in.....8c | 3-16 and 5½ to 6 in.....13c
½ and 3¼ to 4 in.....9c | 5-32 in.....18c
Cast Spring Steel. | 1⅝ to 3⅛ 32 to 1-16 in..7c
1 to 4x1¼ to ⅛ in.....6c | ¼ to 1⅛x5-32 to 3-16 in..8c
Agricultural Steels.
Solid Cast Steel Plow, 4 to 16 by 3-16 to ⅜ in.....6c
"Iron Center Plow," 4 to 16x3-16 to ⅜ in.....5½c
"Iron Back Plow," 4 to 16x3-16 to ⅜ in.....5½c
Soft Steel Center Plow, 4 to 16x3-16 to ⅜ in.....9c
Landside and Cultivator, C. S., ⅛ in. thick.....6½c
Circular Plow Coulters, 5-32 to ¼ in. thick.....10c
Reaper and Scythe.....12c
Fork and Hoe.....6c
Horse Rake Teeth, tol ength.....7c
Finger Bar.....7½c
Cutter Bars, C. S.....7½c
" German Spring Steel.....7½c
Cornstalk Cutter beveled to length.....7c
Planters' Hoe, C. S.....8c
Hoe, C. S.....6½c
Sheet Steels.
German, 10 to 16 g.....7c | Common C'st, 17 to 20 g..9c
" 17 to 20 g.....10c | Best Cast, 10 to 16 g.....12c
Common C'st, 10 to 16 g. 8c | " " 17 to 20 g.....13c

Rolls and Castings.
Furnace, Floor and Straightening Plates.....1¼c
Housings and Castings not otherwise specified.....2½c
Guide Plates.....2½c
Spindles and coupling boxes.....1¾c
Sand Rolls and Pinions, large size.....2½c
" " small size.....3 c
Pipe Mill Castings.....4 c
Rolling Mill Castings under 50 lbs.....3 c
Spur and Bevel Wheels, large.....3 c
" small.....4 c
Pulleys up to 30 inches.....3 c
" over 30 inches.....3½c
Engine Castings, light.....3¼c
" heavy.....3½c
Chilled Rolls.
6 to 7 in. diam., 7 to 20 in. long.....6 c
8 to 15 in. " 8 to 40 in. " .....4 c
15 to 24 in. " 15 to 72 in. " .....4 c
24 to 31 in. " 72 to 108 in. " .....4 c

Heavy Hardware.
Bolts, Screws, Nuts, etc.
Lewis, Oliver & Phillips, discount off Standard List
Carriage & Tire Bolts, ordinary orders 75, & 3 % off net
Stove Bolts.....40&5 % off net
Elevator Bolts.....30 % off net
Machine and Square Head Bolts.....60&10 % off net
Coach and Lag Screws.....60&10 % off net
Bolt Ends.....60&10 % off net
Pat. Hot Pressed Sq and Hex. Nuts.....8c ₩ lb off net
Washers, all made from new band iron.....8c ₩ lb off net
Nuts and Washers in 25 lb boxes, ½c ₩ lb ex. Nuts and Washers in lots less than one keg each size, ½c ₩ lb ex. Nuts and Washers in 5 lb boxes, 1c ₩ lb ex
Strap and T Hinges.....60&10 off net
Harrow Teeth.....net
Skein Bolts.....net
Cast Iron Washers.....3½c ₩ lb net
Fire Shovels and Pokers.....50 % off

Wagon Hardware.
Single Trees, Neck Yokes and Double Trees, made from best selected hickory, and ironed complete, in the most approved patterns.
No. 1 Southern Plow Single Tree, Ironed complete, Irons all Wrought.....each, 25c net
No. 2 Western Plow Single Tree, Ironed complete, Irons all Wrought.....each, 35c net
No. 3 Wagon Single Tree, Iron complete, Irons all Wrought, except Malleable Ferrule.....each, 50c net
No. 4 Wagon Single Tree, Ironed complete, Irons all Wrought; Improved End Pieces riveted on; one side acts as a wear Iron for wheel to rub against.....each, 50c net
Neck Yoke, Ironed complete, Irons all Wrought except End Ferrules, with Wt. Iron Rings.....each, 60c net
Southern Plow Double Tree, Ironed complete, Irons all Wrought.....each, 50c net
Wagon Box Strap Bolts—
For orders of 100 Set, 45&10 % dis.
10 in. long by 7-16 at Screw End, ₩ set of 8 bolts.. 45c
12 in. " ½ " " " 8 " .. 55c
10 in. " 9-16 " " " 8 " .. 55c
12 in. " 9-16 " " " 8 " .. 70c
14 in. " 9-16 " " " 8 " .. 80c
10 in. " ⅝ " " " 8 " .. 80c
12 in. " ⅝ " " " 8 " .. 90c
14 in. " ⅝ " " " 8 " .. 1.00
16 in. " ⅝ " " " 8 " .. 1.10
18 in. " ⅝ " " " 8 " .. 1.20
20 in. " ⅝ " " " 8 " .. 1.30
50 ₩ set for each additional inch over 14 inches. All lengths made.

Horse Shoes, Etc.—In 100 keg lots.
Juniata Horse Shoes.....per keg, $3.25
" Mule " 4.25
" "Roadster" pattern.....3.40
Steel Toe Calks.....per 7½c lb.
Thistlewood & Co.'s Self-Sharpening Horse Shoes.....per keg, $5.25
Thistlewood & Co.'s Self-Sharpening Snow Shoes.....5.50
Toe Calks.....per lb. 8c

White and Red Lead.
White Lead in Oil, Assorted Kegs (all sizes).....7½c
" " 25 lb Tin Pails, 100 lb Cases.....8 c
" " 12½ lb Tin " 8½c
Red Lead.....in kegs, 6¼c; in barrels, 6 c
Orange Mineral.....8½c; 8 c
Litharge.....6¼c; 6 c
Dry White Lead..less than 500 lbs., 7½c; over 500 lbs. 6¾c
White Lead in Oil in lots of less than 500 lbs., ½c additional.
Terms: Note at sixty days, or if paid within 15 days from date of invoice, a discount of 1½ per cent. will be allowed, but not otherwise.

Window Glass.
Per Box of 50 Feet.—Discount 75 @ 75&10 %.

Single Strength.

Size.	AA.	A.	B.	C.
6 x 8 to 10 x 15	$7.50	$6.75	$6.25	$5.75
11 x 14 to 16 x 24	8.50	7.75	7.25	6.50
18 x 22 to 20 x 30	10.75	9.75	8.75	7.75
15 x 36 to 24 x 30	12.25	10.75	9.00	
26 x 28 to 24 x 36	13.00	11.50	9.75	
26 x 36 to 26 x 44	14.50	13.25	10.75	
26 x 46 to 30 x 50	15.00	14.00	11.25	
30 x 52 to 30 x 54				
30 x 56 to 34 x 56				
34 x 58 to 34 x 60				
36 x 60 to 40 x 60				
Double Strength.				
6 x 8 to 10 x 15	12.00	11.00	10.00	25
11 x 14 to 16 x 24	13.75	12.50	11.75	10.50
18 x 22 to 20 x 30	17.25	15.75	14.00	
15 x 36 to 24 x 30	16.75	17.25	14.50	
26 x 28 to 24 x 36	21.00	18.50	15.75	
26 x 36 to 26 x 44	23.25	21.25	17.25	
26 x 46 to 30 x 50	24.00	22.50	18.00	
30 x 52 to 30 x 54	25.75	23.25	19.25	
30 x 56 to 34 x 56	27.75	25.00	21.75	
34 x 58 to 34 x 60	29.25	27.75	24.00	
36 x 60 to 40 x 60	33.25	30.00	27.75	

An additional 10 per cent. will be charged for all glass more than 40 inches wide. All sizes above 52 inches in length and not making more than 81 united inches, will be charged in the 84 united inches bracket.

CHICAGO.

(The Chicago Stamping Co., 10, 12 & 14 Lake St.)
March 2, 1879.

Tin Plate.—

10x14, IC, Ch'l Best,	7 25	14x20, IXX, Ch' Best,	11 25
10x14 IX, " "	9 25	14x20, IXXX, " "	13 25
12x12, IC, " "	7 25	DC, 100 Plate " "	7 25
12x12, IX, " "	9 25	DX, " "	9 25
14x20, IC, " "	7 25	DXX, " "	11 25
14x20, IX, " "	9 25	DXXX " "	13 25
20x28, IC, Charcoal Roofing, Good		IC, Roofing, " "	6 75
20x28, IC, "		Best	18 50
20x28, IX, "		"	17 50
10x14, IC, Coke Plates			6 75
14x20, IC, "			6 75
10x20, IC, "			9 75

Block Tin—
Large Pigs .....18c | Bars.....20c
Small.....19c

Zinc.—sheet, 500 to 1000 lb. Casks.....6¾c
Loose Sheets.....7¼c
Slab Zinc or Spelter.....5 c

Copper.—Bottoms.....26c
Sheathing.....24c
Planished.....32c
" Boiler lengths 34c
Ingot.....15¼c
Bolt.....24c

Braziers' Sheets.—
30x60, 6 to 7 lbs....₩ lb 30c | 30x60, 10 to 12 lbs...₩ lb 26c
Bx60, 8 to 9 lbs.... " 28c | 30x60, 15 to 100 lbs. " 24c

Solder.—F. S. & Co.'s make
Best Fine.....14c
No. 1.....13c
Roofing.....11¾c
Braziers or Spelter Solder.....25c

Antimony.....15c

Babbit Metal—F. S. & Co.'s.....13c
No. 2.....10c

Sheet Iron.—

	Common.	Smoothn. Com.	Smooth Charcoal.	Smooth Juniata
No. 24	8 c	8 80c	8¼c	7 c
25 & 26	8 20c	8 c	8 c	7½c
27	8 40c	8 20c	8¼c	7¾c

Galvanized Iron.—dis 45 %

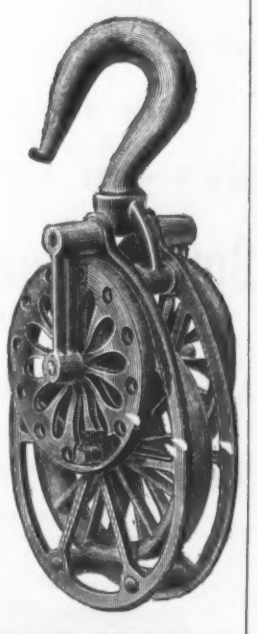
No. 16 to 20	13c	No. 27	13c
21 to 24	13c	28	16c
25 & 26	14c		

Russia Iron.—
Perfect.....13½c | No. 1 Stained.....13½c
In Sheets, 1c. higher.
American Russia.—
A.....10½c | B.....9½c
In sheets, 1c higher.

Lead.—
Pig.....5 c | Lead Pipe, in full coils 5¼
Bar.....5½c | Lead Pipe, when cut.. 6
Sheet Lead.....6¼
Wire—bright.....dis 50 %
Coppered.....dis 45 %

THE PROVIDENCE TOOL COMPANY'S

Patent Anti-Friction Hoisting Block.



For hoisting Coal, Ore, Ice, or other heavy work, where Steam or Horse power is used. Made of Galvanized Iron and Steel, and not affected by exposure to weather.

Twenty-four feet hoist turns the friction wheels on the side around once.

The Block uses 3-inch to 4-inch rope, and will sustain with safety a load of 4 tons.

Will run either end up, or on its side. The lightest running and most durable Block yet produced.

Satisfaction guaranteed. Try one.

Send for Price List of Blocks.

Providence Tool Co.,

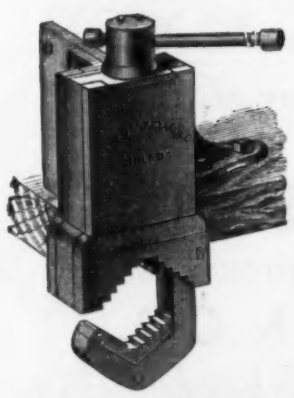
PROVIDENCE, R. I.,

J. H. WORK, *13 Pearl St.,* Boston Agent.

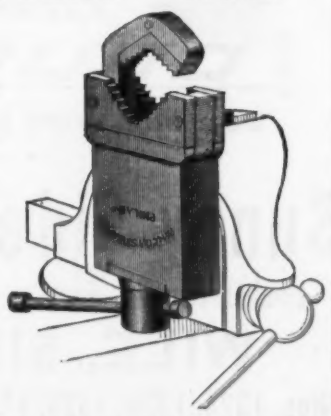
S. H. & E. Y. MOORE, *163 & 165 Lake St.,* Chicago Agents.

HENRY B. NEWHALL, *11 Warren St.,* New York Agent.

IMPROVED PIPE-FITTERS' VISE.



STRONG,
LIGHT,
EFFICIENT,
CHEAP.



To meet the requirements of the large number of persons who have use for such an article, we invite attention to our Improved Pipe Vise. This Vise can be used either as a permanent fixture to work-bench, attached to angle plate or can (unlike others) be held between the jaws of any Machinist's or Blacksmith's Vise; the movable jaw being OPEN ON SIDE permits work to be gripped at any desired point without slipping it in from end, and allows of FITTINGS BEING HELD securely; the Box is made of Malleable Iron, the Screw of Wrought Iron, and the remainder of Solid Steel throughout. The Steel Gripping Jaws can be duplicated and replaced at any time when worn out. It is a very convenient tool, well adapted to the wants of Plumbers, Pump Fitters, Well-Drivers, and all who have use for a tool that is *strong, light, efficient and cheap* which can be readily carried about with kit of tools.

MANUFACTURED BY

PANCOAST & MAULE,

243 and 245 South Third Street, Philadelphia.

Wheeler, Madden & Clemson

MFG. CO.,

MIDDLETOWN, - - - - NEW YORK.

Manufacturers of

WARRANTED CAST STEEL

SAWS

Of every description, including

Circular, Shingle, Cross-Cut, Mill, Hand,

WOOD SAWS, Etc., Etc.

AMERICAN SAW CO.,

Manufacturers of

Movable Toothed Circular Saws,

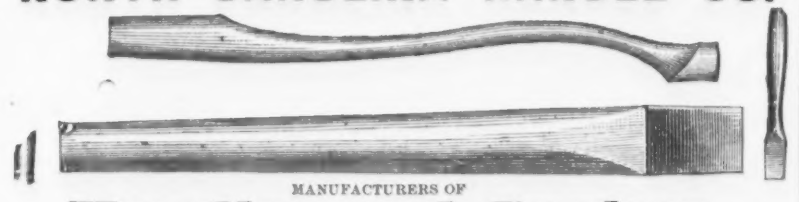
PERFORATED CROSS-CUT SAWS

And SOLID SAWS of all kinds, Trenton, N. J.

HUNDLEY & HANKS,

PROPRIETORS OF

NORTH CAROLINA HANDLE CO.



MANUFACTURERS OF

Handles and Spokes,

79 Reade Street and 97 Chambers Street, - - - NEW YORK.

HARDWARE COMMISSION MERCHANTS.

WM. R. HARTIGAN, Burlington, Ct.,

Manufacturer of all kinds of

TOOL HANDLES AND SEAT STICKS FOR CARRIAGES, &c.

Also all kinds of Enameled Goods made of wood, such as Drop Knobs, Furniture Knobs, Organ Stops, Brush Handles, &c., &c. Also sole manufacturer of the Patent ANTI-NERVOUS TRIANGULAR PENHOLDER. Send for Catalogue and Price List before purchasing. F. B. EMMONS, Agent, 132 Duane St., New York. Manufactory at BURLINGTON, Conn., U. S. A.

L. M. RUMSEY & CO.

MANUFACTURERS & JOBBERS OF

PUMPS & FIRE ENGINES,

LEAD PIPE & SHEET LEAD — GAS PIPE FITTINGS

RAILWAY SUPPLIES,

PLUMBERS & STEAM FITTERS BRASS GOODS, — BELTING, HOSE, PACKING, &c.

NO. 810. N. SECOND STREET, ST. LOUIS, MO.

Manufacturers of GALVANIZED PUMP CHAIN FOR CHAIN PUMPS.

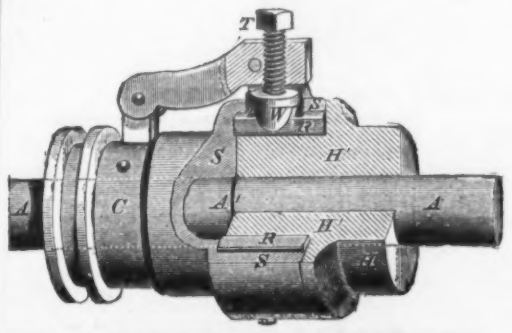
PATENT

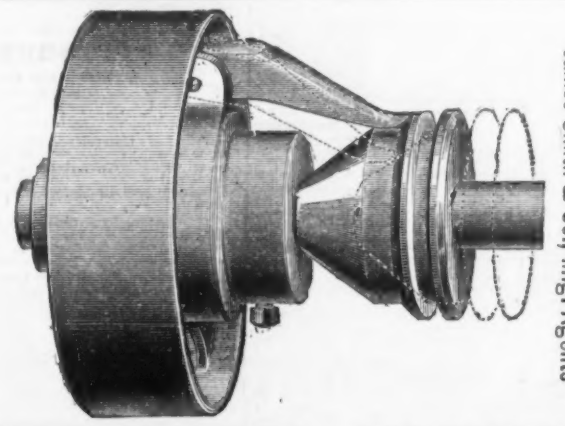
Expanding, Self-Draining

RUBBER BUCKET.

Manufactured only by

L. M. RUMSEY & CO.





HUB FRICTION CLUTCH.

James Smith & Co., Mfg. Agents

PATENT HUB FRICTION CLUTCH.

Manufactured by the **HUB FRICTION CLUTCH CO., Limited, Philadelphia.**

We claim for this device the following advantages for a perfect clutch, it having been adopted by several of the leading manufacturers of machinery and machinists' tools: It works easily but effectively. It works instantly and without noise. It is very durable, and is extremely simple and cheap, and has proven itself to be the best clutch in the market. Special arrangements can be made with leading manufacturers for the adoption of this clutch for their own tools. This clutch can and will be sold for less money than any other clutch in the market.

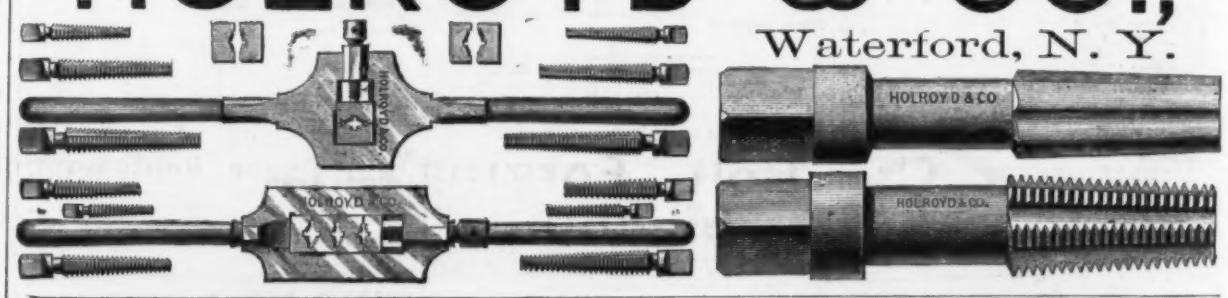
For sale by GEO. V. CRESSON, Philadelphia; MORTON, REED & Co., Baltimore.

JAMES SMITH & CO., Mfg. Agents, 137 Market Street, Philadelphia.

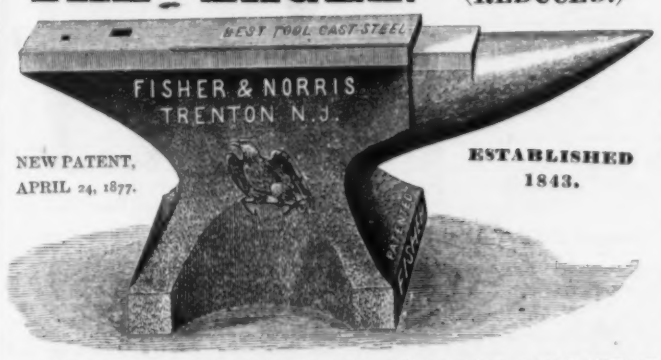
H. S. MANNING & CO., NEW YORK AGENTS, 111 Liberty Street

HOLROYD & CO.,

Waterford, N. Y.



THE "EAGLE." (PRICES REDUCED.)



NEW PATENT, APRIL 24, 1877.

ESTABLISHED 1843.

WARRANTED!!

Better than the best English Anvil.

Face in one piece, of BEST TOOL CAST STEEL. PERFECTLY WELDED, perfectly true; of hardest temper and never to come off or "settle." Horn of tough *untempered steel*, never to break or bend. It does not bounce the hammer back, and therefore can do more work with lighter hammer. *Only Anvil made in United States fully warranted as above. None genuine without our trade mark.*

New Price List, April 1, 1879.

ANVILS weighing 100 lbs. to 800 lbs., **9** cents per lb., with special discounts to the trade.

SMALLER ANVILS ("MINIMS").

No.	00	0	1	2	3	4	5	6	7	8	9
Weighing about	5	10	15	20	30	40	50	60	70	80	90 lbs.
		$2.25	2.75	3.25	4.00	4.50	5.25	6.00	6.50	7.25	8.00

N. B.—These are the RETAIL PRICES. The only additional cost will be the freight to the purchaser's place of residence.

SOLD BY

New York—RUSSELL & ERWIN MANUFACTURING COMPANY, H. DURRIE & CO., TENNIS & WILSON.
Philadelphia—JAMES C. HAND & CO. Boston—GEORGE H GRAY & DANFORTH.
Baltimore—W. H. COLE & SONS, JOHN R. KELSO, Jr.
Louisville—W. B. BELKNAP & CO. Cincinnati—POST & CO. Cleveland—THE LAKE ERIE IRON CO.

PAT. "SCREW WINDOW BALANCES."

Retail Price, $1 per window (four balances).

Liberal Discount to the Trade.

Retain Medium and Light Window Sash at any point of opening, with large surplus holding power in reserve, available by drawing the adjusting screws when required. They are to old windows without weights what the door knob has been to old doors furnished with latches.

A valuable article, as easily applied to old and new windows as the common sash pulley. They do everything claimed for them, rendering the use of boxed frames, cords, pulleys, and the perplexing task of hanging sash unnecessary.

Sashes are locked with a meeting rail lock, as with weights.

These goods give satisfaction. For sale by the Hardware trade. Send orders, &c., to

ROBERT B. HUGUNIN,
Manufact'rer of Screw Balances,
Wethersfield, Ct.

See *The Iron Age* of June 5 and July 3, 1879, and wholesale New York prices, this paper, for prices to the trade.

THE UNIVERSAL

LIFTING JACK,

For lifting carriages, wagons, heavy loaded teams, fire engines, railway cars, &c. Four sizes, with patent rubber cushions; will not mar the finest painted carriage.

DINSMORE MFG. CO.,
235 Washington St.,
BOSTON.

Silver medal awarded by Massachusetts Mechanic Charitable Association.

FOR SALE BY

SARGENT & CO., 37 Chambers St., New York.
MACOMBER, BIGELOW & DOUSE, 156 Oliver St., Boston.

No. 1.

NEW sizes Patent Malleable Iron Oilers, Nos. 2 and 3.

NEW pattern Heavy Screw Clamps; strongest in the market.

Send for Price List.

Malleable Iron Castings

Of superior quality, and Hardware Specialties in Malleable Iron made to order.

HAMMER & CO., Branford, Conn.

No. 2.

"THE BOSS" JACK-SCREW.

R. D. WYNN,

Windsor, Vt., U. S. A.,

Sole manufacturer of the above Screw. Indorsed by builders, railroad and mining men as the best screw jack in the market. Also manufactures Press Screws, Lard and Wine Presses, Tackle Blocks, &c. Circulars and prices, address as above. (Please say *The Iron Age.*)

Agents. { Pugsley & Chapman, 8 Liberty St., New York. / Sam'l May & Co., 16, 18 & 20 Oliver St., Boston.

ROCK BREAKERS.

Blake's Patent Expired—End of Monopoly.

The undersigned, sole owners of the old Leviathan, Gates' patent, and the Brown's patent Rock breakers, will guarantee our crushers to break two tons to one of Blake's (or any other.) Send for circulars. Also Stamp Mills and all kinds of Mining Machinery made on short notice.

Office, *52 Canal Street, Chicago, Ill.*

GATES & SCOVILL IRON WORKS.

MACHINE SCREWS.

The HUBBEL SCREW COMPANY, LIMITED, are now prepared to sell to consumers and manufacturers of fine thread Machine Screws, their celebrated MACHINES, with latest improvements, at very favorable prices,

Hubbel Screw Co. Limited,
No. 4 Fletcher Street, New York.

BOSTON.

Reported by Macomber, Bigelow & Dowse, 156 to 164 Oliver St.

Anvils.—"Eagle American" ₩ ℔ 9c. dis 20 %
Apple Parers.—Reading ₩ doz $4.50
Lightning ₩ doz 6.50
Reading "98" ₩ doz 7.40
Aiken's Tools dis 40&10 %
Anvil & Vise.—
No. 1, $4.50; 2, 3.75; 3, 3.00 each dis 25 %
Augurs & Bitts.—Snell's Auger dis 50 %
L'Hommedieu's Shib Augers dis 15 %
Jenning's Bitts dis 10&10&10 %
Cook's Bitts dis 40 %
Shepardson's Double-Cut Bitts dis 50 %
" " Gimlets dis 50 %
Stearn's Extension Hollow Augers per doz $36.00
Bonney's " " " per doz 33.00
Axes.—Blue Jackets per doz 7.50
Red Cross per doz 7.00
" Handled per doz 9.00
Dowse " Boys' dis 15 %
Ax Handles.—
Oak Extra, 31 in., No. A ₩ doz $2.25
" 34 in., No. A ₩ doz 2.50
" 31 in., No. B ₩ doz 1.75
" 34 in., No. B ₩ doz 2.00
" 31 or 34 in., No. C ₩ doz 1.25
Axle Clips dis 60 %
Balances.—Chatillon's dis 25&10 %
Barn Door Rail.—
Cast Angle (for Anti-Friction Hangers) per ft. 3c
" Half-Round per ft, ⅝, 2½c; ⅞, 4½c
Wrought " per ft, ⅝, 3½c; ¾, 4c; ⅞, 4c
Bells.—Connel's Crank Gong dis 40&10 %
Bird Cages.
Japanned M. B. & D., reduced list, 1879 dis 33⅓ %
Brass " " 1879 dis 25 %
Blind Fasts.—Lock Fasts ₩ C sets $4.00
No. 6 Fasts ₩ C sets 4.00
Veazie Fasts ₩ C sets 6.50
Shedd's ₩ C sets 7.00
Blind Hinges.—Mall. Hook, 3 holes ₩ C sets 6.00
Brad Awl Handles.—
Phœnix Adjustable ₩ doz $2.00
Bolts.—Norway Iron Carriage dis 75 %
Common " dis 75&10 %
Borax.—Refined ₩ ℔ 10c
Boring Machines.—Eagle Upright each, $2.75
Eagle Angle each, 2.50
Snell Augers ₩ set 1.60
Braces.—Berber's dis 40& 5 %
Spofford's dis 50 %
Backus' dis 60 %
Bracket Saws.—Roger's each $2.25
Bracket Saws, extra quality, to No. 6 ₩ gro $6.75
Steel Frame, with patterns ₩ doz 7.40
Lester dis 25 %
New Rogers, all iron each, $2.25
Brackets.
R. B. & M. Flower Pot dis 50 &10 %
Bronzed Sheet, R. B. & D. list dis 25 %
Bread Kneader.—Stanyan dis 25 %
No. 4 capacity 3 loaves ₩ doz $24.00
No. 5 " 5 " ₩ doz 27.00
No. 6 " 8 " ₩ doz 33.00
Bronze Hardware.—Norwalk Lock Co. dis 50&10 %
Butts.—Union Fast Joint dis 50& 10 %
" Loose " dis 75&10 %
" Japanned Acorn dis 75&10 %
" Silvered " dis 75&10 %
" Boston Fihish dis 75&10 %
Centennial Spring dis 25 %
Carriage Jacks.—Climax ₩ doz $15.00
" large size ₩ doz 18.00
Cartridges.—U. S. Cartridge Co. dis 60&10 %
Cards.—Watson's makeHorse and Curry dis 75½&10 %
" Cotton dis 25&10 %
" Wool dis 25&10 %
Casters.—Bed and Table dis 50&10 %
Chain.—Traces 6/8, 10, 4, straight ₩ pair 45c
" 6/8, 10, 4, twisted ₩ pair 40c
" 7, 12, 4, " ₩ pair 75c
Coil 3-16 ₩ ℔ 7½c
" ¼ ₩ ℔ 7½c
" 5-16 ₩ ℔ 6½c
" ⅜ ₩ ℔ 5½c
" 7-16 ₩ ℔ 5c
" ½ ₩ ℔ 5c
Chalk.—White, Carpenter's ₩ gross 55c
Red, Carpenter's ₩ gross 75c
Blue, " ₩ gross 90c
Chisels.—Hart, Bliven & Mead, Framing dis 70 %
Underhill, Framing dis 25 %
Buck's Shank, Framing dis 25 %
Clothes Line.—
Galvanized Wire, 100 feet each ₩ doz $4.00
Coal Hods.—Ironclad.—Galvanized dis 25 %
Japanned dis 30 %
Copper Rivets. dis 50 %
Cocks.—Brass, L. F. & C dis 10 %
Cordage.—Manila, usual trade dis 1c ₩ ℔ 13½c
Jute ₩ ℔ 9c
Cow Ties. dis 45 %
No. 30, 3 ft. No. 6 Wire, with toggle ₩ doz $3.60
No. 35, 3 ft. " " with snap ₩ doz 3.80
No. 40, 3½ ft. " " with toggle ₩ doz 3.90
No. 45, 3½ ft. " " with snap ₩ doz 4.10
No. 50, 4 ft. No. 4 " with toggle ₩ doz 4.50
No. 55, 4 ft. " " with snap ₩ doz 4.75
No. 60, 4½ ft. " 3 " with toggle ₩ doz 5.30
No. 66, 4½ ft. " " with snap ₩ doz 5.62
Crow-Bars.—Cast Steel ₩ ℔ 7c
Iron, Steel Pointed ₩ ℔ 4½c
Cutlery.—Pocket, American Shear Co.'s dis 40 %
Butcher Knives, "Woods," Lap Boister, Square Handle dis 33⅓ %
Steak Knives dis 20 %
Lap Boister, Oval Handle dis 25 %
Sticking dis 33⅓ %
Skinning dis 33⅓ %
Butcher, Common Round Handle, "Woods" dis 25 %
Shoe Knives, "Woods" dis 10 %
Dividers.—Cook's dis 25 %
Dog Collars. dis 20 %
Dog Muzzles.—Automatic dis 15 %
Door Springs.—Torrey's Rod ₩ doz $1.75
Gem Coil dis 20 %
Eccentric Steel Coil Spring, No. 1 ₩ doz $2.75
Crown ₩ doz $1.25
Warners ₩ doz $2.25
Door Stops.—"Thurston's" dis 50 %
Drawer Knobs.—"Thurston's" dis 50 %
Drills.—Morse Bitt Stock dis 25 %
Morse Straight Shank dis 20 %
Emery.—Wellington Mills ₩ ℔ 10c
Alden's ₩ ℔ 6c
Enamelled Ware.
Standard Mfg. Co. Kettles dis 60 %
" Sauce Pans dis 40 %
Fellos Plates.—Wrought ₩ ℔ 7c
Files.—Madden & Cockayne dis 35 %
American File Co dis 40 %
Nicholson " dis 35 %
Fluting Machines.
Knox, with 6 inch rolls ₩ doz $36.00
Geneva ₩ doz 13.50
Rochester ₩ doz 24.00
"Princess" ₩ doz 9.00
Forks. W. C. & Co., Manure dis 50&10 %
Gimlet Bitts.
Genuine Gerian, No. 125, 1-32 to 8-32, $1.00;
10-32, $1.50; 12-52, $1.20 ₩ doz gold.
Glass Cutters.
Combination Class Cutter and Knife Sharpener ₩ doz $1.00
Grub Hoes.—K. P. & Co.'s No. 2 ₩ doz 7.50
Hammers.—Maydole's dis 15 %
Hammond's dis 20 %
Dowse's Steel, A. E ₩ doz $4.00
M. B. & D. dis 25 %
Hangers & Rollers.—Anti-Friction dis 60&10 %
Climax dis 50&10 %
Novelty dis 40 %
Common dis 50&10 %
Hand Screws. dis 20 %
Hatchets.—Dis. 15 %
C. F. Dowse, Combination per doz. $10.00
Underhill dis 20 %
Hay Knives.—Lightning ₩ doz $8.00
Hinges.—Strap and T (new list) dis 60&10 %
Providence Plate ₩ ℔ 40c
Wrought Screw Hook ₩ ℔ 40c
Hoes.—W. C. & Co.'s dis 50&10 %
Hooks and Staples.—Brewers' dis 50 %
Horse Nails. No. 6 7 8 9
National Finished .23 .21 .20 .19 dis 25 %
Putnam Pointed .23 .21 .20 .19 10 %
Horse Nails.—Bridgewater dis 25 %
No. 5, 23; No. 7, 21; No. 8, 20; No. 9, 19.
Knobs.—"Norwalk." ₩ doz $0.65
Mineral ₩ doz .85
Porcelain, Japanned Mtg ₩ doz 2.50
" Por. Rose Nickel Mtg ₩ doz 2.50
" Plated " " ₩ doz 2.50
Silver Glass ₩ doz 8.00
" Bell Pulls ₩ doz 6.00
Lanterns.—Tubulars, No. 0 ₩ doz 10.00
Railroad, Oil, No. 43 ₩ doz 8.00
Guarded, Oil and Candle, No. 26 ₩ doz 3.40
Triangular ₩ doz 4.00
Hurricane dis 30 %
Lawn Mowers.—"Charter Oak"
8 inch cut each $ 8.00
10 " " 10.00
13 " " 13.00
15 " " 15.00
18 " " 18.00
Lead.—Sheet ₩ ℔ 6½c
Pipe ₩ ℔ 8½c
Locks.—Norwalk Lock Co. (reduced list) dis 50&10 %
Eagle Cabinet dis 25 %
" Trunk dis 25 %
W. Wilcox & Co., Padlocks dis 33⅓&5 %
American Lock Co.'s Steel Key dis 33⅓ %
Metallic Sieves.—Mann's Patent dis 33⅓ %
Manure Forks.—W. C. & Co. dis 50&10 %
Mattocks.—K. P. & Co., Long Cutter ₩ doz $9.00
K. P. & Co., Short Cutter ₩ doz 8.50
" " Pick ₩ doz 9.00
Measuring Tapes.—Eddy's dis 20 %
Meat Cutters.—Miles' Challenge dis 30 %
Hale's dis 50 %
American dis 25 %
Money Drawers.—Tucker's Alarm ₩ doz $22.50
Mouse Traps.—Delusion ₩ doz 2.00
Oilers.—Zinc and Tin dis 50 %
Brass and Copper dis 50 %
Ox Bows.—Extra finished and varnished dis 10 %
1¼ in., ₩ doz. pair, $5.75 | 2 in., ₩ doz. pair $9.00
1⅜ in., " " 8.00 | 2½ " " 11.00
Padlocks.—W. Wilcox & Co.'s dis 33⅓&5 %
Miller's Brass ₩ doz $6.00
Picks.—K. P. & Co., Adze Eye, 5 to 6 ℔ ₩ doz 6.50
" " 6 to 7 ℔ ₩ doz 7.00
Planes.—Greenfield Tool Co. dis 40 %
N. Y. Tool Co. dis 50 %
English Iron dis 20 %
Bailey's dis 25&10 %
Plated Ware.—Rogers & Bro. dis 40&5 %
Pliers.—Yom Cleff & Co.'s Gold 115 %
Button's Wire Pliers dis 33⅓ %
Plumb & Levels.—Stanley, R. & L. Co. dis 60&10 %
Pocket Knives.
American Shear Co.'s dis 33⅓&10 %
Potato Diggers.
W. C. & Co. reduced list dis 50&10 %
Pulley Blocks dis 40 %
Pumps.—Union Manufacturing Co.
Iron Cistern dis 55 %
" Pitcher Spout dis 55 %
Copper dis 25 %
Rivets.—Black dis 50 %
Carriage in 10 ℔ papers dis 35 %
Copper dis 50 %
Razor Strops.—Torrey's Full line
Rules.—Stanley Boxwood, dis 70&10 %
" Ivory dis 60&10 %
Sadirons.—Common ₩ ℔ 2½c
Laundry ₩ ℔ 5c
Tailor's Geese ₩ ℔ 6c
Enterprise, "Potts" dis 33⅓ %
Mrs. Potts' Large Polishing, Nickeled ₩ doz net $2.50
Sash Locks.—King & Hutchinson's, new list dis 40 %
Hopkins & Dickinson's dis 40 %
Sandpaper.—Baeder & Adamson dis 20 %
M. B. & D. dis 25 %
Sash Weights.—Patent Eye ₩ ℔ 1½c
Saws.—Hand Saws, Disston's dis 20 %
Wheeler & Clemson dis 30 %
Cross-Cut Saws.
W. M. & C., Common Tooth, No. 1 ₩ foot 35c
" " Champion " ₩ foot 35c
Disston's, Common " ₩ foot 44c
" Gt. American " ₩ foot 44c
Boynton's Lightning " ₩ foot 45c
M. B. & D., Hand Saws dis 40 %
W. M. & Co.'s, Circular Saws dis 40 %
Saw Sets.—Spring Lever ₩ doz $10.00
Saw Blades.—Disston dis 20 %
W. M. & C. dis 10 %
Welch & Grimth, Extra ₩ doz $9.00
" " No. 2 ₩ doz 8.00
Scales.—Fairbanks dis 25 %
Howe dis 25 %
Screws.—Aiken's Flat-Head Iron dis 60 %
American Flat-Head Iron dis 60 %
" " Brass dis 45 %
" Round-Head " dis 30 %
" " Iron dis 45 %
Grilley " Nickel-plated Piano dis 55&5 %
" " " Common dis 50 %
Shaves.—Kimball's ₩ inch 7½c
Watrous dis 15 %
Shears.—American Shear Co dis 75 %
Shot.—Tatham's ₩ ℔ 9c
Shovels.—O. Ames dis 20 %
O. Ames, other brands dis 20 %
M. B. & D. dis 20 %
Oxford, Birmingham Pattern dis 45 %
Snow Shovels.—Malleable tips ₩ doz $5.00
Skates.—Union dis 25 %
Acme dis 20 %
Spoons.—Tinned Iron dis 40 %
Britannia dis 50 %
Rogers' A No. 1 dis 40&5 %
Stock and Dies.—King's dis 10&5 %
Tacks.—A. Field & Son's dis 50&25 %
Pittsfield dis 50&25 %
Traps.—Oneida, Genuine dis 33⅓ %
Oneida, Imitation, H. & N dis 50&10 %
Blake's dis 60&10 %
Tree Scrapers.—No. 1 ₩ doz. $2.00
No. 2 ₩ doz 3.00
No. 3 ₩ doz 4.00
Vises.—Solid Box, Blacksmith's ₩ ℔ 10½c
Simpson's Adjustable dis 25&10 %
Howard Vise Co. dis 33⅓
P. L. & Co., Solid Blacksmiths' new list dis 10
Weather Strips.
Browne's Flexible Rubber dis 30 %
In 20 feet boxes; No. 1, ⅜ in. wide, ₩ yard, 10c.; No. 2, ½ in., 15c.; No. 3, ¾ in., 20c.; No. 4, 1 in., 25c.
Valentine's Felt Moulding dis 30 %
Black Walnut Spring Weather Strips ₩ doz. $3.00
Window Awning.
Dearborns' per window; $1.00, dis 25 %
Window Springs. dis 20 %
Babcock's No. 3 ₩ gross $3.25
" " 4 ₩ gross 4.15
Wire Goods.—Gate Hooks and Eyes, &c. dis 70&10 %
Wrenches.—A. G. Coe's dis 60&10&10 %
Girard Mfg. Co dis 60&10&10&5 %
Girard Agt. dis 70&10&5 %
Wringers.—Universal, No. 3 ₩ doz $6.00
Universal, No. 2½ ₩ doz 6.00
Novelty, No. 10 ₩ doz 60.00
" No. 2 ₩ doz 63.00
" No. 22 ₩ doz 67.20
Excelsior, No. A ₩ doz 78.00
" No. B. ₩ doz 86.00
" No. CC. ₩ doz 108.00
Novelty Set Tub, E ₩ doz 0.00
Eureka ₩ doz 51.00
Keystone, Wood Frame No. 1½ ₩ doz 51.00
" Iron Frame No. 2½ ₩ doz 51.00
Peerless ₩ doz. No. 2½, 60.00; No. 2, 63.00; No. 3, 71.00
Unique, No. 1 ₩ doz 54.00
Zinc. ₩ ℔ 6½c
Withington, Cooley & Co.—Hoes, Rakes, Forks, &c. dis 50&10 %. Special rate for Export.

St. Louis Metal Market.

(Corrected Weekly by Messrs. R. Sellers & Co.)

Tin Plate.

IC, 10x14, Best Char.	7.00	DX, 12½x17, B. Char.	9.00
IX, 10x14, "	9.00	DXX, 12½x17 "	11.00
IC, 12x12, "	7.00	DXXX, 12½x17 "	13.00
IX, 12x12, "	9.00	DXXXX, 12½x17, "	15.00
IC, 14x21, "	7.00	IC, 20x28, "	17.00
IX, 14x20, "	9.00	IX, 20x28, "	17.00
IXX, 14x20, "	11.00	IXX, 20x28, "	21.00
IXXX, 14x20, B. Char.	13.00	IC, 14x20, Best Roof	6.50
IXXXX, 14x20, "	15.00	IX, 14x20, "	8.50
IC, 12x24, "	7.25	IC, 20x28, "	13.25
IX, 12x 1, "	9.25	IX, 20x28, "	17.25
IC, 14x14 "	13.00	IC, 10x14, Best Coke	6.50
IX, 14x14, "	15.00	IC 14x20, "	6.50
IXX, 14x14, "	18.00	IC, 10x20, "	9.50
DC, 12½x17, "	7.00	Pr box 225 sh's Sale Tin	6.50

Sheet Iron.	Com'n.	Sm'th.	B. U. D. Ref'd	Planis'd Sm'th.
No. 16 to 20	3c	3 8c	5 8c	6c
No. 22 to 24	3 0c	3 8c	5 8c	7 c
No. 26	3 10c	3 9c	6 c	7 c
No. 27	3 20c	4 c	6 2c	7 2c

Genuine Russia Iron.
Perfect—No. 9, 10, 11, 12 per lb. 13½
No. 1 Stained—No. 9, 10, 11, 12 per lb. 14
Tare 22 lbs. to Bdle. For less than Bdle. add 1c. ₩ ℔
Patent Planished Iron
No. 24 to 27, A quality per 100 lbs 6
" " B " " 9
For less than Bdle. add 1c. per lb.
Galvanized Sheet Iron.
Juniata, or 1st quality, Discount for full bundles 45 %
Block Tin.
Banca, Large Pigs 32c | do. Small 31c
Straits, Large Pigs 31c | Bar 32c
Eng. Ref'd, Large Pig 31c
Solder.
Extra in Bars 11c | No. 2, in Bars 9½c
No. 1, in " 10c | Spelter Solder 24c
Pig Lead—Pigs 4c | in Bars 5c
Antimony 14c
Bismuth 1 50
Nickel 1 15
Crucibles.—Dixon's ₩ No. 4 6c
Babbit Metal.

No. 1	₩ ℔. 16c	No. 3	₩ ℔ 9 c
" 2	" 12c	" 4	" 6 c

Copper.
Brazier's, 30x60, 14 to 100 lbs. Sheets 24c
" " 10, 11 & 12 lbs. " 26c
" " 8 and 9 lbs. " 28c
" " 6 and 7 lbs. " 30c
Tinned, 14x48, 14 and 16 oz. 35c
Planished, 14x48, 14 and 16 oz. 38c
" Boiler Sizes, 14 and 16 oz. 35c
Gutter Copper, 20 and 24x72, 10, 11 and 12 ℔. Sheets 42c
" " 14 ℔. Sheets 40c
Reservoir Copper, 16x60 and 18x60 22c
Bar Copper, Square and Round, ⅜ to 1¾ Inch 24c
" " ⅜ Inch 26c
Copper Bottoms 28c
Metallic Bottoms 18c
Soldering Coppers 46c
Brass.
Roll, No. 10 to 28, 12 in. in width 25c
" 20, 12 in. in width 30c
" 24, 16 " 33c
" 24, 16 " 33c
" 26, 16 " 34c
Platers, No. 40, 6 40c
Discount 10 per cent.

Brass and Copper Wire.

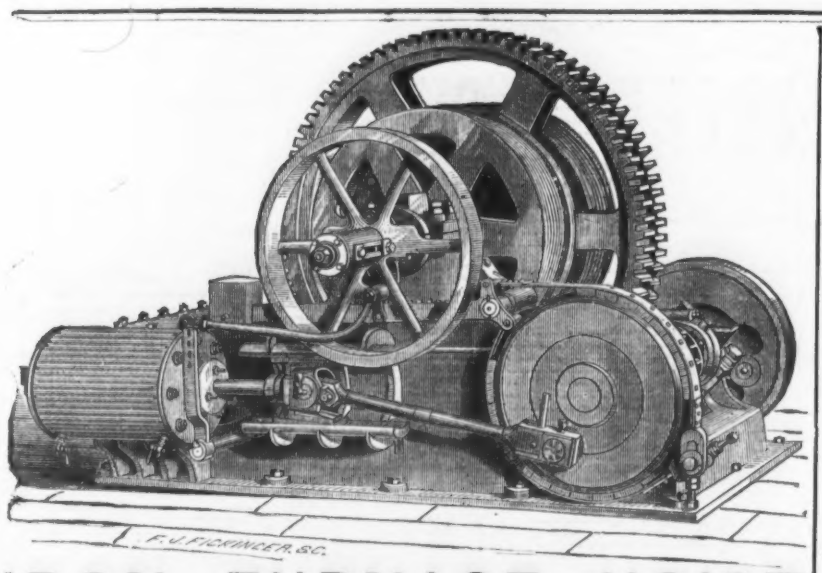
	Brass.	Copper.		Brass.	Copper.
No. 0 to 20	36c	34c	No. 24	75c	45c
" 21	34c	41c	" 25	38c	47c
" 22	32c	44c	" 26	40c	50c
" 23	33c	43c	" 27	43c	52c

Brass Spring Wire, 2c. ₩ ℔ advance.
Discount 10 per cent.

Brass Tubing

Plain ⅛ to 3 Inch	38c	5-16 Inch	38c
⅜ Inch	38c	½ "	36c

Copper Rivets and Burs dis 50 %
Brass Kettles 8 to 12 Inches ₩ ℔ 35c.
all sizes over 12 Inches " 40c
Sheet Zinc.—600 lbs. cask 7c
250 lbs. cask 7¼c
Sheet 7½c
Wire.—Iron, Bright Market dis 55 %
Iron, Coppered Market dis 70 %
Fence, Nos. 7, 8 and 9 ₩ ℔ 3.40c
Trellis, Nos. 10 and 11 4½c
" No. 12 4½c
Hay Baling, Charcoal, No. 10 and 11 5 c
" " No. 12 5½c
Broom, Tinned, Nos. 18 to 22 10c
Fence Staples per keg 4 c
Per lb. 6½c
Iron Rivets.—Black, papered dis 25 %
Tinned, papered dis 25 %
In bulk new 3-16 ¼ 5-16 ⅜ In diam.
8 4c 7 8c 1.5c 5 8c per lb
Tacks.—New Hardware List dis 50 %
Bad Irons. ₩ ℔ 3½c
Enameled Kettles.—Standard Mfg. Co. dis 60 %
Enameled Sauce Pans.
Standard Mfg. Co. dis 40 & 10 %
Enameled Boilers.—Standard Mfg. Co dis 40 %
Dripping Pans.—Smooth Iron dis 40 & 10 %
Geneva Fluters per doz $12.00
Monroe Fluters " 11.50
Stove Polish.—Dixon's per gross 6.00
Gem " 3.50
Japanese " 4.50
Dixon's, in bulk ₩ ℔ 8c
Coffee Mills.—Parker's dis 50 %
Granite Iron Ware dis 50 %
Spoons.—Tea & Table dis 40 %
Basting " dis 40 %
Retinned Iron Ware dis 25 & 50 %



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Passenger and Freight Elevators, Steam, Hydraulic and Belt Power. Portable and all kinds of Hoisting Machinery a specialty.

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Automatic machines to straighten and cut wire of all sizes to any length; to cut and mill wire for butt pins, bolt shanks and similar articles; to make all kinds of staples, with either square, fleam, chisel or shear points; to roll points on picture nails and similar articles without heat; to cut and form wire into various shapes and sizes, such as rings, buckles, fence barbs and similar articles; to make spiral springs; and for other special purposes to order.

Machines to straighten and cut wire by hand; to rivet together articles of hardware; to drill butts and other hardware; to mill butts; to drill or countersink several holes at once, close together or far apart, on a regular or irregular line; to drill, tap, mill and thread small articles of hardware, such as thumb screws, thumb nuts, &c.; to spin plain or ornamental caps on picture nails, tassel hocks, &c.; for grinding, buffing and polishing; to drive screws into locks, knobs, &c.; foot and hand presses and special power presses to order.

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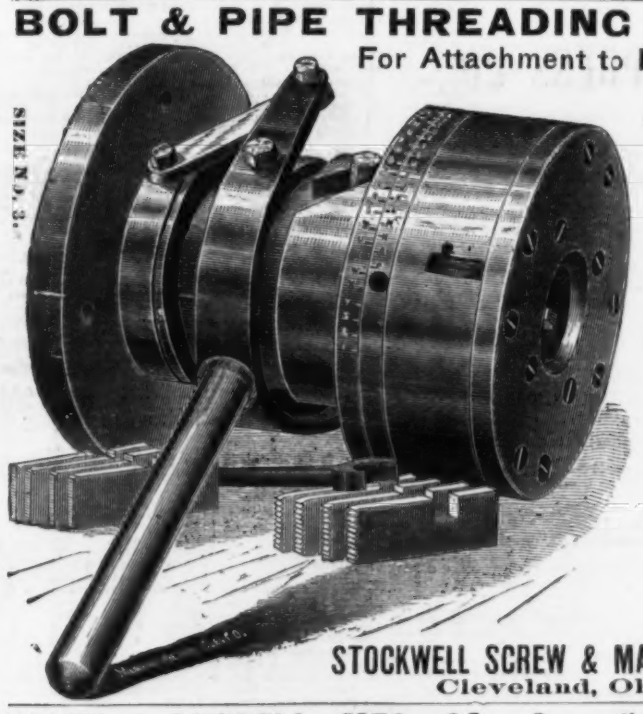
For Attachment to Lathes, &c.



SIZE No. 3.

Send for Catalogue and Price List.

No. 1	threads ¼ to 1 inch.
No. 2	" ¼ to 1½ "
No. 3	" ¼ to 2 "
No. 4	" ¼ to 3 "
No. 5	" ¼ to 4 "
No. 6	" 2 to 6 "

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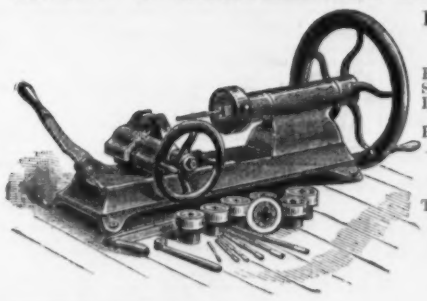
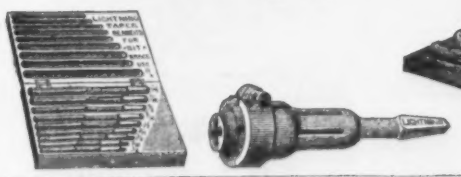
WILEY & RUSSELL MFG. CO., Greenfield, Mass.

Lightning Screw Cutting Machinery and Tools.



Bolt Cutters, for Hand or Power.
Screw Plates, cutting from wire sizes to 1½ inch.
Lightning Taps, Dies and Reamers for use in the Bit Brace.
Pipe Taps and Dies.
Green River Drills, hand or power.
" Tire Benders.
" " Upsetters.
" Horse Shoers' Vises.
Tire Wheels, Tire Bolt Wrenches, &c.
Send for Illustrated Price List.



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Double and Single Gate, ¼ in. to 48 in.—outside and inside Screws, Indicator, &c for Gas, Water and Steam. Send for Circular.

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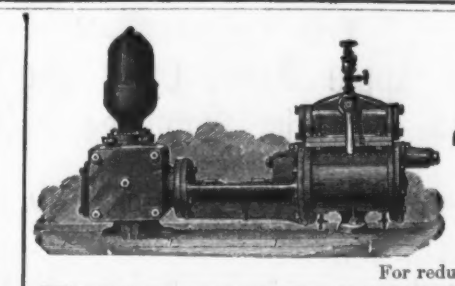
Agents wanted.



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"SPECIAL" STEAM PUMP

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OVER 35,000 HORSE-POWER NOW IN USE. ADAPTED FOR ALL PURPOSES.

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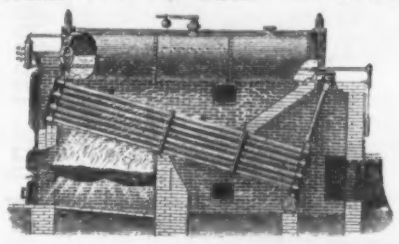

In Sections Easy of Transportation.
No Bolted, Screwed or Packed Joints.
All Joints Made by Expanding Wrought Iron Tubes into Bored Holes.
Can be Erected or Repaired by Ordinary Mechanic.

Easily Cleaned from Soot or Sediment.
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Steady Water Line and Dry Steam.
No Leaks from Unequal Expansion.
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Highest Attainable Economy.

CENTENNIAL EXPOSITION MEDAL AWARDED THIS BOILER FOR HIGHEST ECONOMY AND EFFICIENCY ON TEST.

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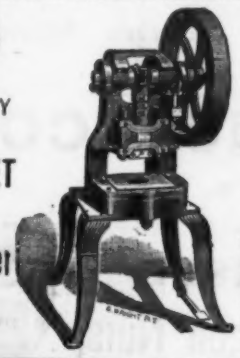

167 to 173 Plymouth St.,
Corner of Jay St.,
BROOKLYN, N. Y.,
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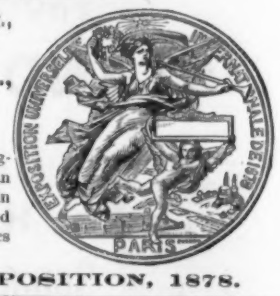

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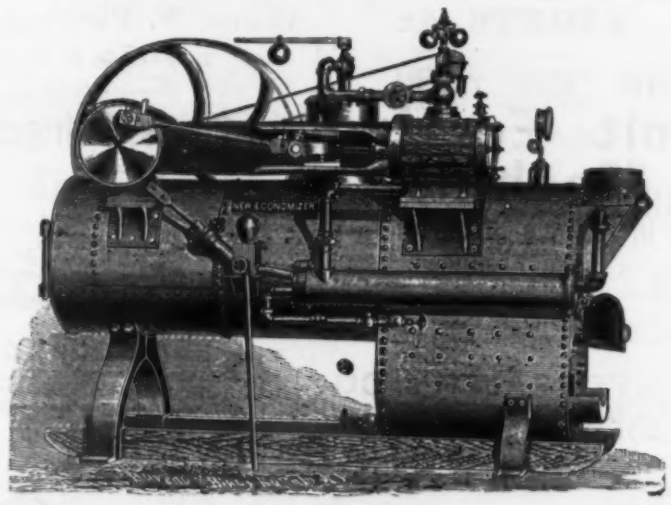
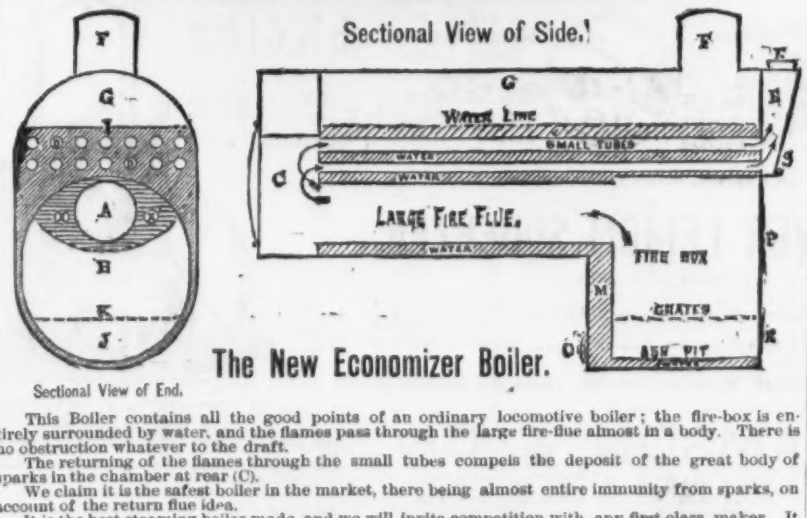
THE NEW ECONOMIZER,

The Only Agricultural Engine with Return Flue Boiler in Use.





The New Economizer Boiler.

This Boiler contains all the good points of an ordinary locomotive boiler; the fire-box is entirely surrounded by water, and the flames pass through the large fire-flue almost in a body. There is no obstruction whatever to the draft.

The returning of the flames through the small tubes compels the deposit of the great body of sparks in the chamber at rear (C).

We claim it is the safest boiler in the market, there being almost entire immunity from sparks, on account of the return flue idea.

It is the best steaming boiler made, and we will invite competition with any first-class maker. It will make more steam with the same fuel than any horizontal boiler built.

Send for Price Lists.

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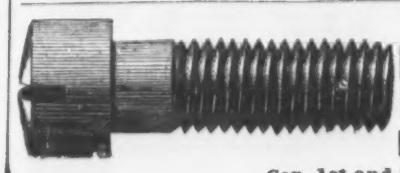
MANUFACTURERS OF

STEAM ENGINES, SAW MILLS AND MINING MACHINERY.

LANE & BODLEY COMPANY, Cincinnati, Ohio.



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One-sixteenth to five-eighths diameter.
Heads and points to sample.
IRON, STEEL and BRASS.

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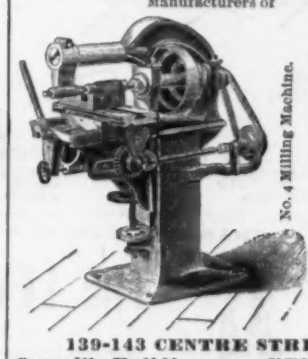
Manufacturers of



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Milling Machines, Drill Presses, Hand Lathes, Tapping Machines, Cutter Grinders and Wood Planers. Milling Cutters, all shapes and sizes. Gear Cutting and Milling in all its branches.

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2	27.00	31.00	2.75	7.50
2¼	32.00	37.00	3.25	9.00
2½	36.00	41.00	3.50	11.00
2¾	40.00	46.00	3.75	12.00
3	45.00	52.00	4.25	14.00
3½	54.00	62.00	4.50	17.00
4	64.00	73.00	5.00	21.00
4½	74.00	84.00	5.50	25.00
5	84.00	95.00	6.00	31.00
5½	97.00	109.00	6.50	37.00
6	112.00	125.00	7.00	42.00
7	132.00	146.00	8.00	50.00
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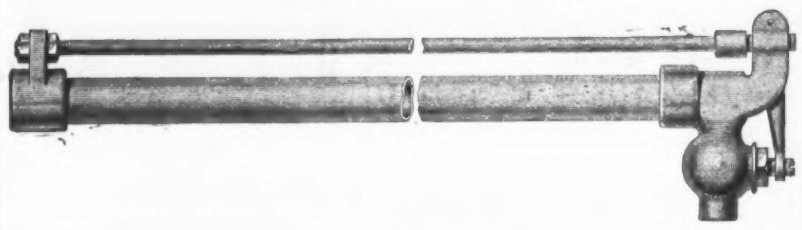

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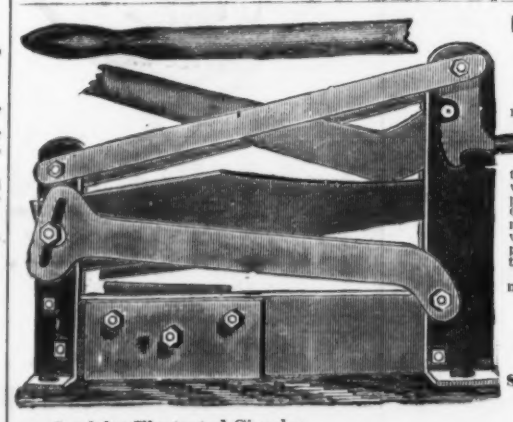

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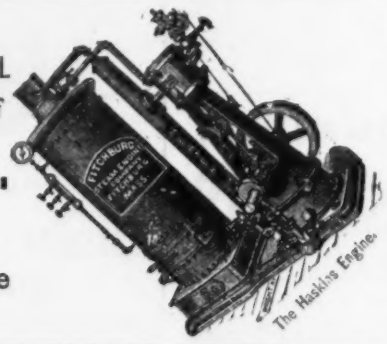

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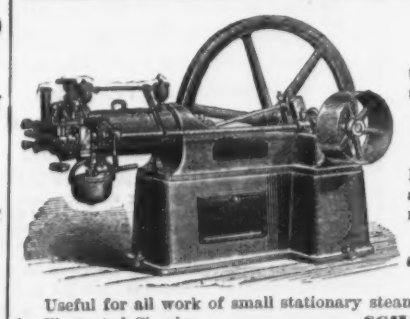

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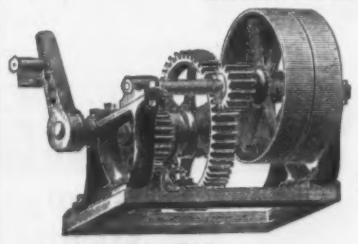

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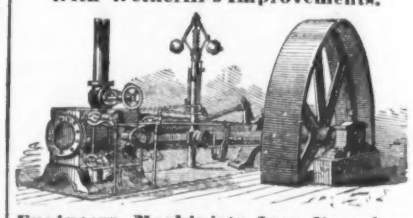

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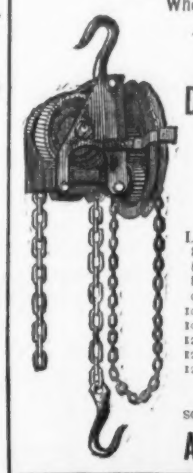

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8	3,000	40 00	1 75
9	4,000	60 00	2 00
10	6,000	75 00	2 10
10	8,000	95 00	2 40
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12	16,000	225 00	4 75
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